

THE ARCHITECTURAL RECORD

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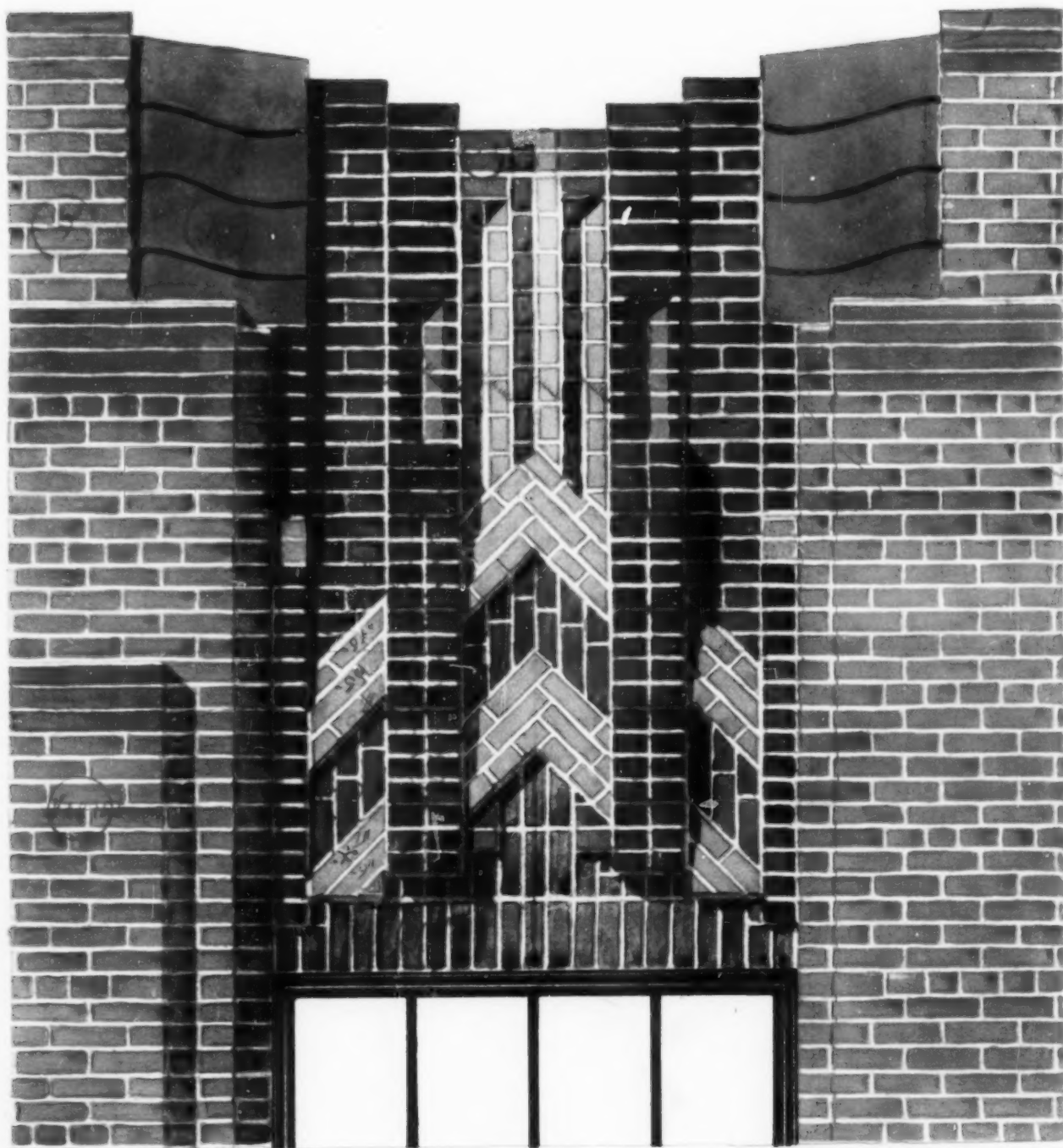
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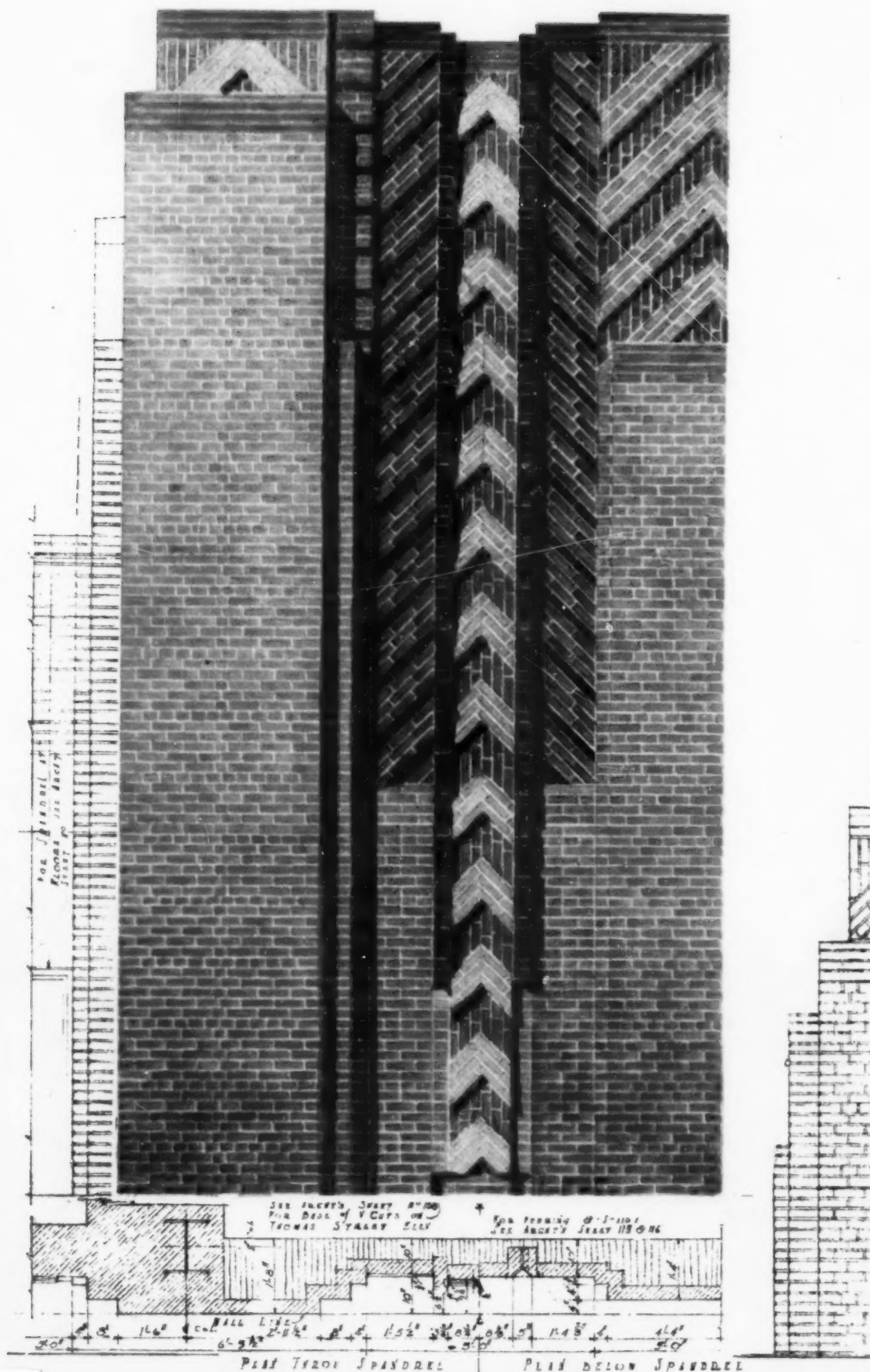
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The entire face of the Western Union Telegraph Building is graduated in color beginning with a deep rose at the base and culminating, after a subtle variation of nineteen shades, in a bright pinkish orange at the top, thereby effecting an exaggeration of the natural play of light upon the upper part of the building.



TYPICAL PARAPET AT FIFTEENTH FLOOR
WESTERN UNION TELEGRAPH BUILDING
VOORHEES, GMELIN & WALKER, ARCHITECTS

Color sketch used to study distribution
and gradation of brick tones and to
prove the advisability of taking full
advantage of the inherent color qualities
of brick.



THE ARCHITECTURAL RECORD

AN ILLUSTRATED MONTHLY MAGAZINE OF
ARCHITECTURE & THE ALLIED
ARTS & CRAFTS



VOLUME 66

JULY, 1929

NUMBER 1

✓ SKETCHES ILLUSTRATING THE DESIGN DEVELOPMENT OF AN OFFICE BUILDING

THE WESTERN UNION TELEGRAPH BUILDING

VOORHEES, GMELIN & WALKER, ARCHITECTS

BY EDGAR ALBRIGHT

THROUGHOUT the design of the Western Union Telegraph Building the prime effort of the designers has been to produce a building, distinctive in a neighborhood of buildings of similar usage, which will fulfill its function as a factory, housing the machinery for the production of the service which this company renders.

The plot is bounded on the west by Hudson Street, which cuts through the cross-town streets considerably off the perpendicular. The combination of the efficient structural layout, which required the spacing of columns in relation to the side streets, and the satisfactory arrangement of the company's equipment, which resulted in long, rectangular areas about the center core, left the triangular areas produced along Hudson Street practically useless and uneconomical, as illustrated by several of the study sketches. Added weight was given to the adoption of the present unusual plan by the distinction gained through the superior massing of rectangular forms, and through the powerful verticals rising, with-

out interruption, at the corners of each setback.

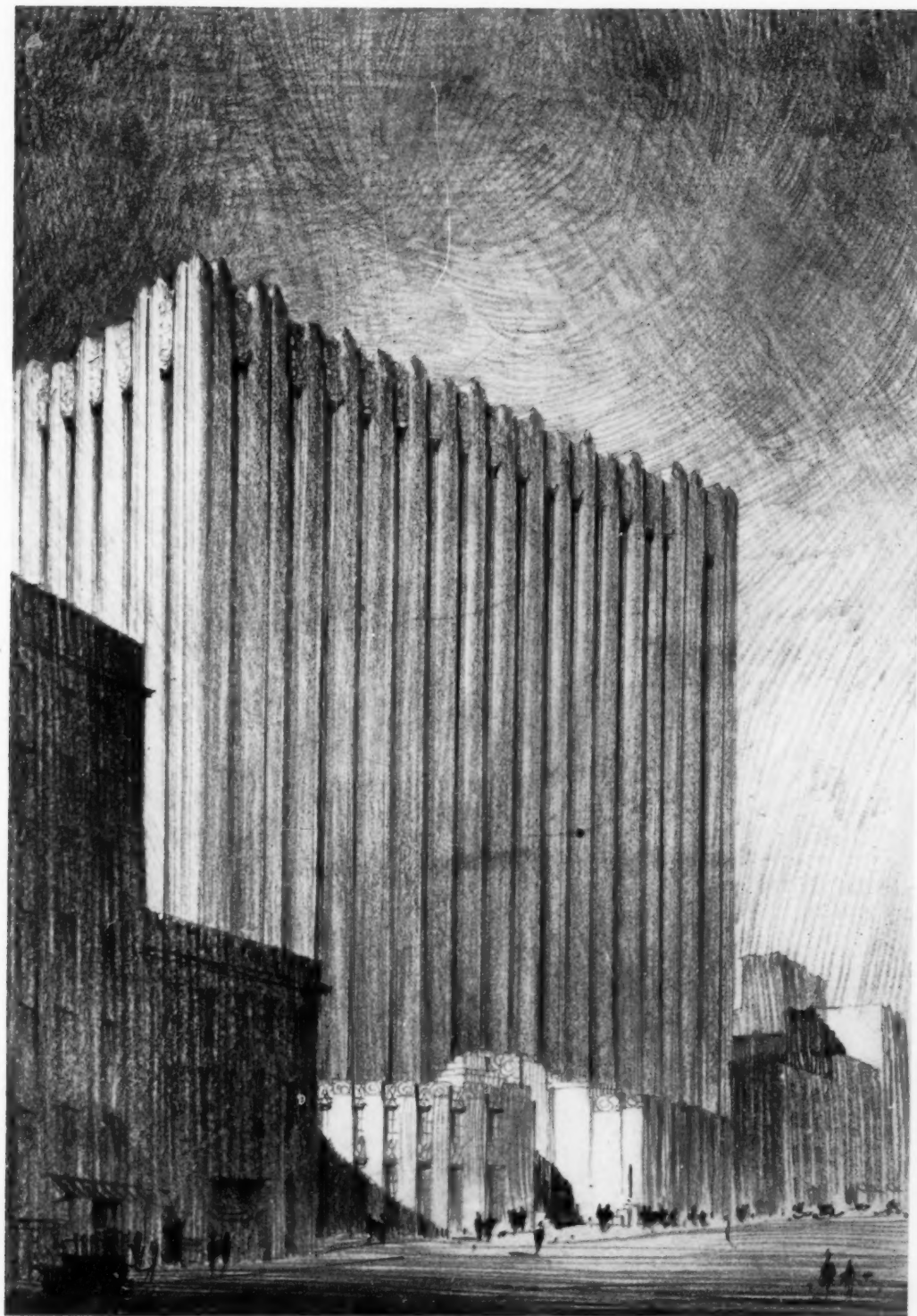
Consistent with the commercial aspect of the design, economy in the selection of materials was of first importance. Brick was the natural selection presenting, as it does, a wide variety of color and possibilities of ornamental treatment, seemingly less rich and, therefore, more suitable to a building of this type than any other material.

The entire building is graduated in color, beginning with a deep rose at the bottom and culminating, after a subtle variation of nineteen shades, in a bright pinkish orange at the top, thereby effecting a pleasing exaggeration of the natural play of light upon the upper portions of the building. These nineteen shades are used in various combinations throughout the ornamental portions of the building, the darker shades giving added life to the lighter tone of the general field at the top, and the lighter shades serving the same purpose in the lower stories.

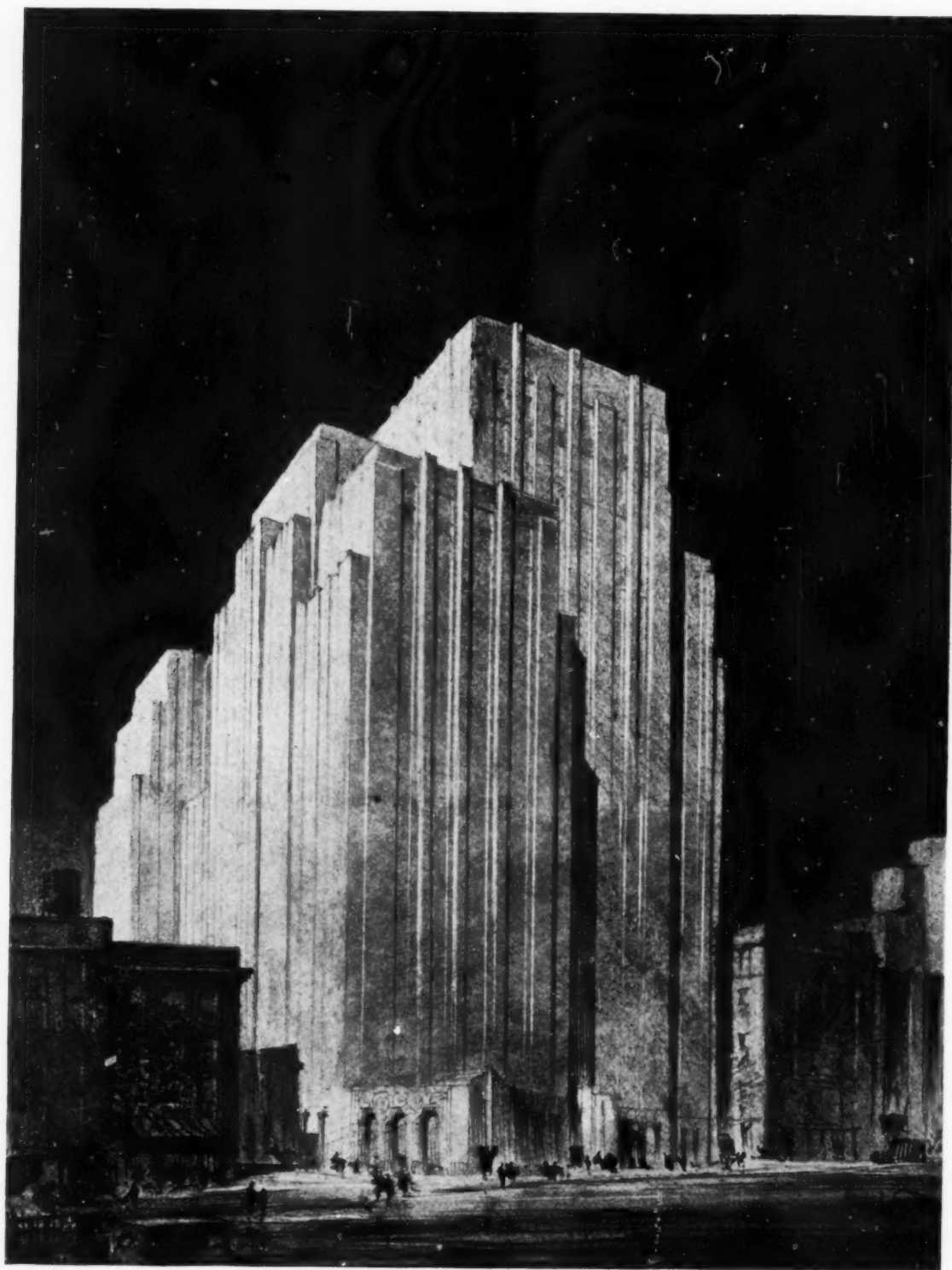
The color sketches reproduced herewith



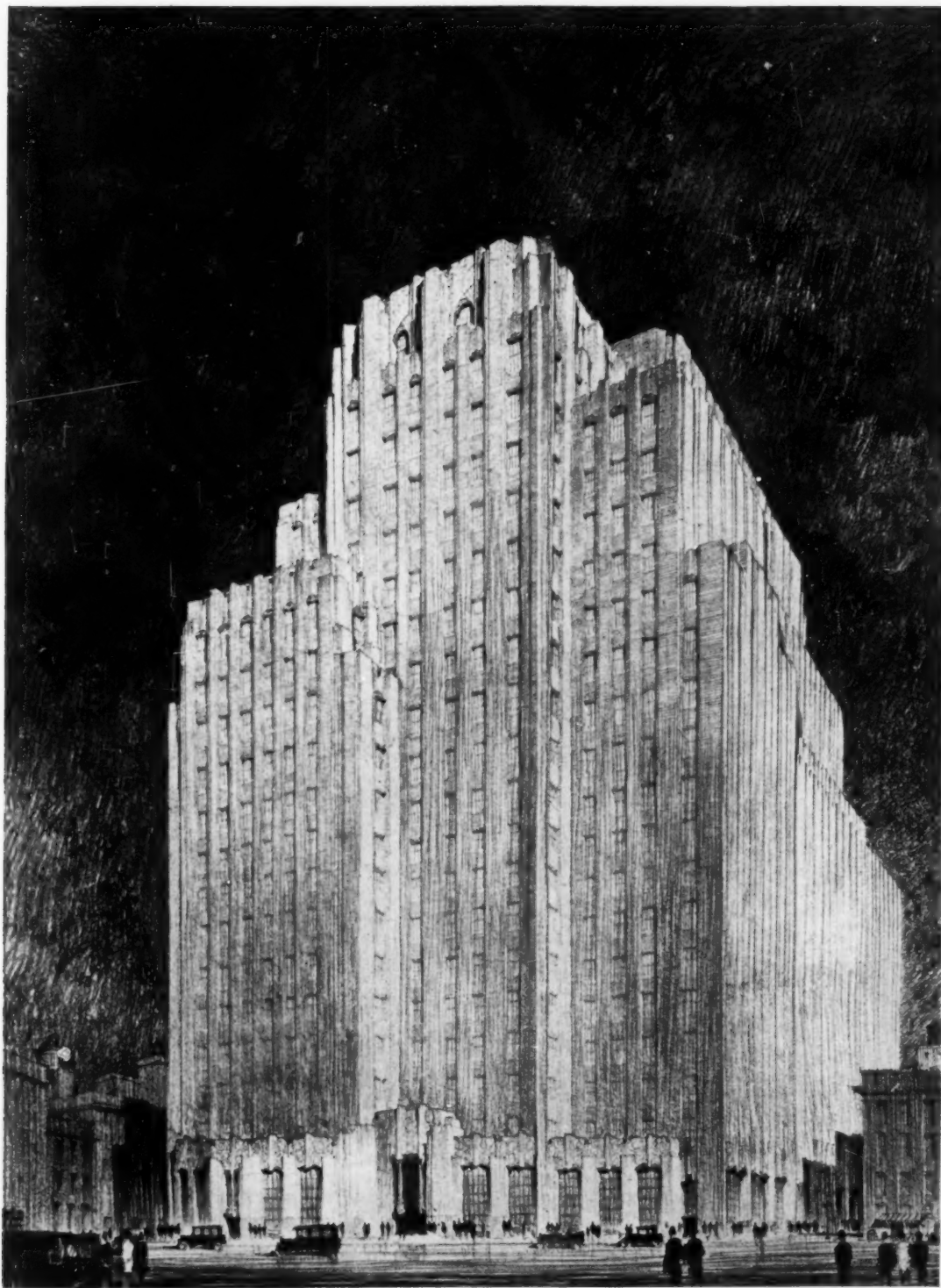
SCHEME 1
WESTERN UNION TELEGRAPH COMPANY BUILDING
VOORHEES, GMELIN & WALKER, ARCHITECTS



SCHEME 2
WESTERN UNION TELEGRAPH COMPANY BUILDING
VOORHEES, GMELIN & WALKER, ARCHITECTS



SCHEME 3
WESTERN UNION TELEGRAPH COMPANY BUILDING
VOORHEES, GMELIN & WALKER, ARCHITECTS



SCHEME 4
WESTERN UNION TELEGRAPH COMPANY BUILDING
VOORHEES, GMELIN & WALKER, ARCHITECTS

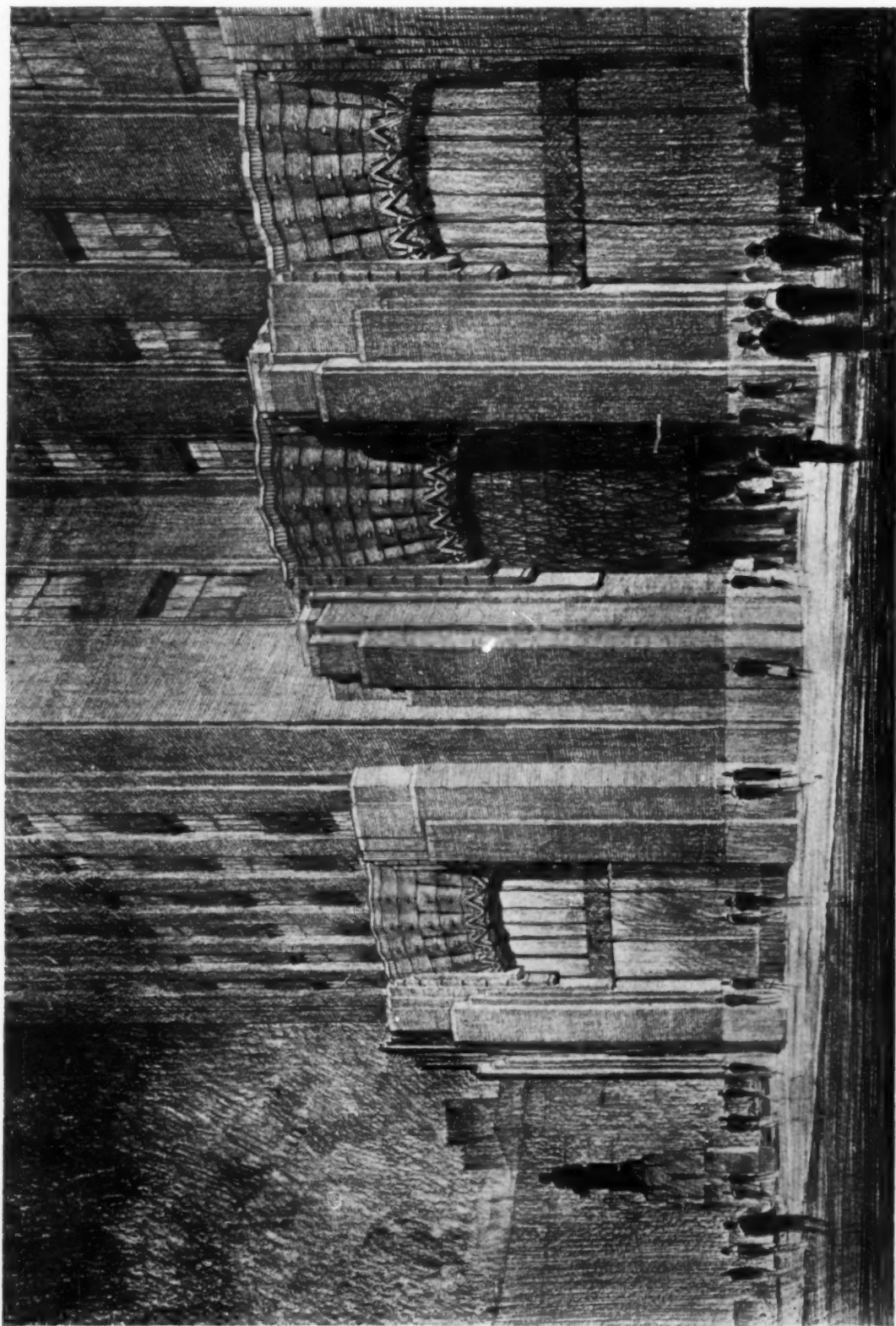


SCHEME 5
WESTERN UNION TELEGRAPH COMPANY BUILDING
VOORHEES, GMELIN & WALKER, ARCHITECTS

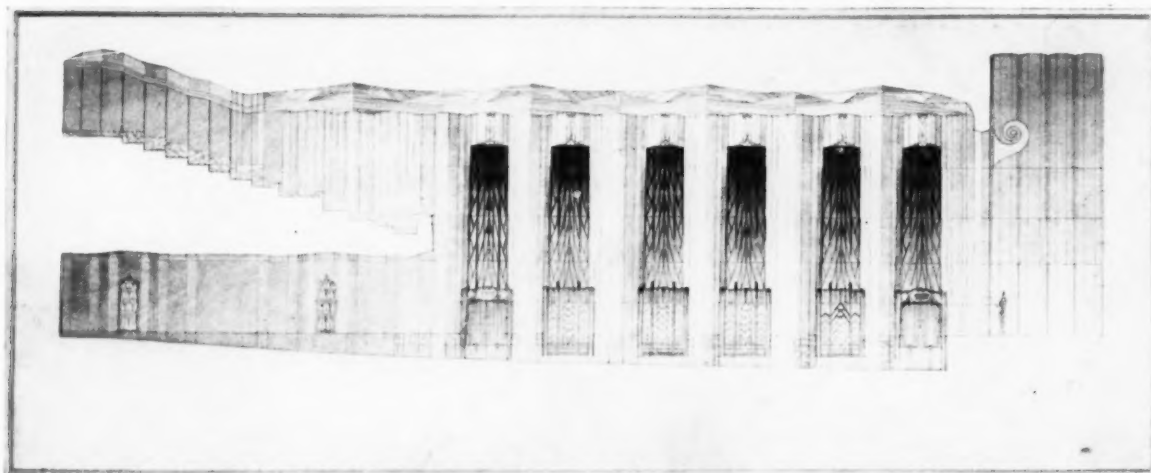


Chester B. Price, Del.

FINAL SCHEME
WESTERN UNION TELEGRAPH COMPANY BUILDING
VOORHEES, GELIN & WALKER, ARCHITECTS



STUDY FOR ENTRANCE
WESTERN UNION TELEGRAPH COMPANY BUILDING
VOORHEES, GMELIN & WALKER, ARCHITECTS



SECTION THROUGH AUDITORIUM

were used to study the proper relations of these tones and to prove the advisability of taking full advantage of the inherent color qualities of the brick itself, rather than resorting to the introduction of some other material which so often results in a spotty and unharmonious treatment.

The experience in handling this supposedly common-place material in an attempt to bring out some of its interesting possibilities has led to an appreciation of how many and varied those possibilities are

for its use in decorative work. Considerable satisfaction also arises from the craftsman-like pride which the mason himself takes in such an innovation in the handling of his familiar material.

Unique in these two aspects of plan and material, which should serve to lend it distinction, this building has been designed throughout to serve its utilitarian purpose as efficiently as possible. The collaboration of architect with craftsman was continually stressed.



REYMER CANDY SHOP AND TEA ROOM
PITTSBURGH, PENNSYLVANIA
LAMONT H. BUTTON, ARCHITECT



EXTERIOR ELEVATION

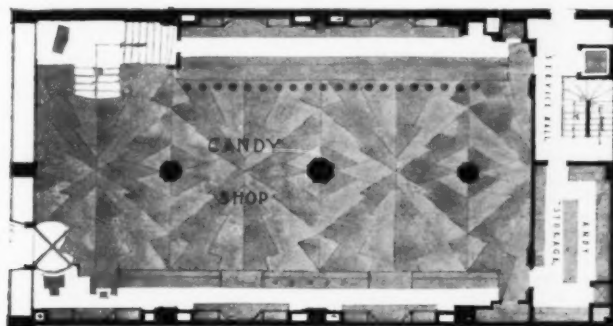


Photo. Walter Hall Company

GENERAL VIEW OF TEA ROOM



FIRST FLOOR PLAN



MEZZANINE FLOOR PLAN

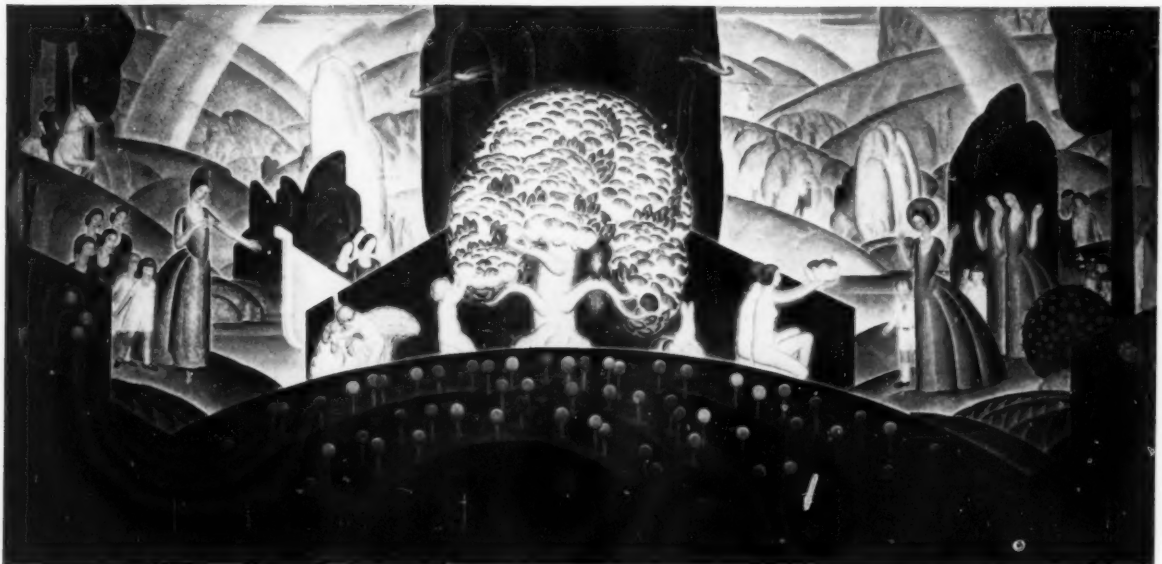
REYMER CANDY SHOP AND TEA ROOM, PITTSBURGH, PENNSYLVANIA

LAMONT H. BUTTON, ARCHITECT



Photo. Walter Hall Company

TEA ROOM LOOKING TOWARDS APPROACH



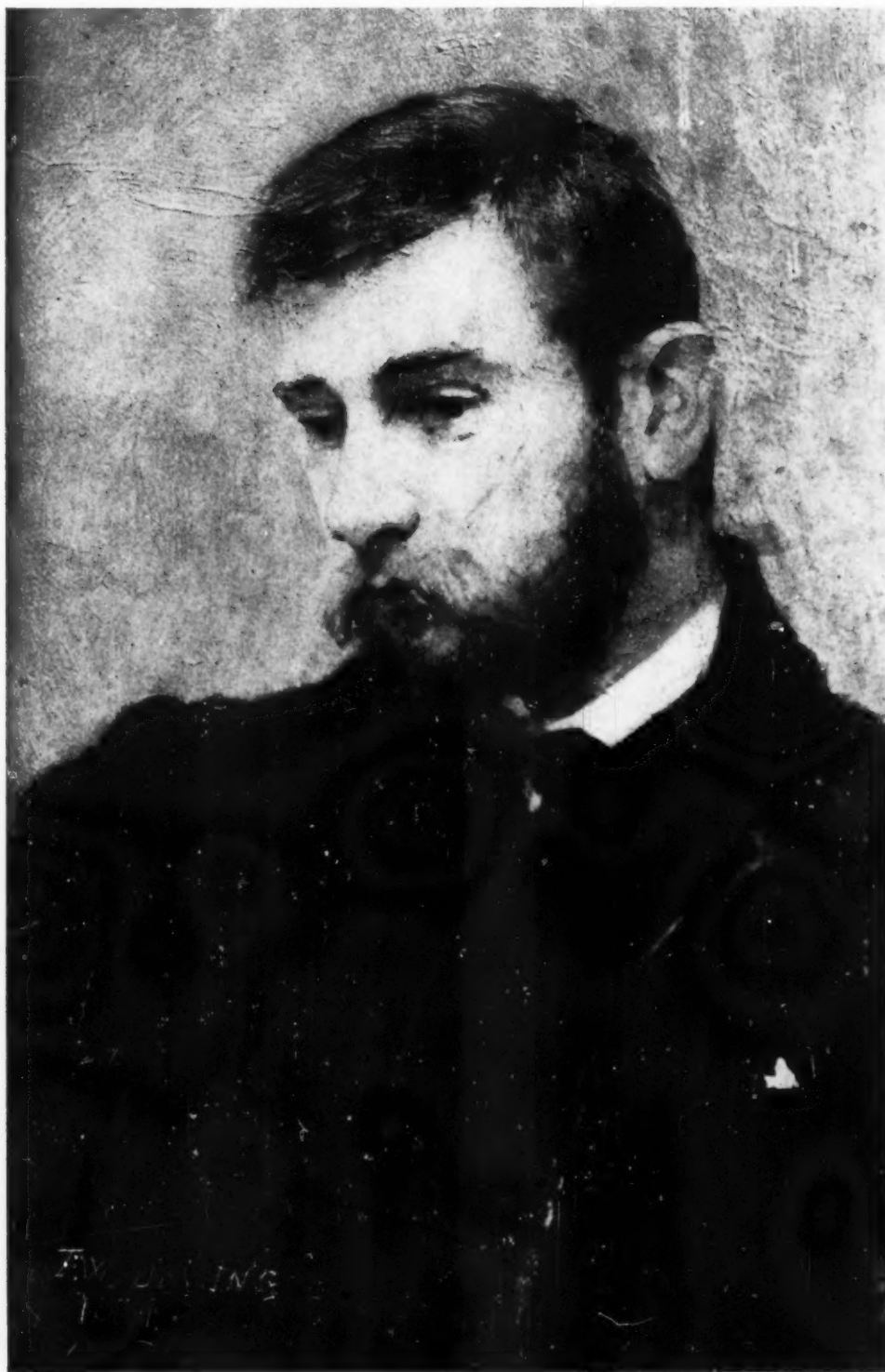
Painting by Norwood MacGilvary

"THE BON BON TREE" AT REAR OF CANDY SHOP
REYMER CANDY SHOP AND TEA ROOM, PITTSBURGH, PENNSYLVANIA
LAMONT H. BUTTON, ARCHITECT



Photo. Trinity Court Studio

GRAND STAIRCASE—CANDY SHOP TO TEA ROOM
REYMER CANDY SHOP AND TEA ROOM, PITTSBURGH, PENNSYLVANIA
LAMONT H. BUTTON, ARCHITECT



JOSEPH MORRILL WELLS, 1853-1890

From a portrait by J. W. Dewing

JOSEPH WELLS, ARCHITECT, 1853-1890

BY C. HOWARD WALKER

Joseph Wells, one of the almost forgotten "worthies" of American Architecture, was a talented draftsman of the firm of McKim, Mead and White, back in the 'eighties. He has been variously spoken of as "McKim's right-hand man" and as responsible for the adoption by his firm of Italian Renaissance forms.

THE PROVERB "Poeta nascitur non fit" can be applied to some architects as well as to poets, and to such the license of *vers libre*, and of *bâtiments raisonnés* has little charm. These men have an intuitive perception of the most distinguished qualities of their art which is only enhanced by training, and which is inherent in all their work even in its adolescent stages. Their discriminative choice of subjects for inspiration is always of the best, and while others are gradually acquiring good taste, they have possessed it as a birthright. Such men are rare, and usually of unique personality, not always comprehended by methodical learners. Especially is this the case when the prevailing trend of the times is to extol small gods so numerous that they shroud the great masters.

Of this rare coterie of men was Joseph Wells, working in a time when Victorian banalities were a fashion, and were honestly considered to have at least a picturesque merit and honorable antecedents. He had no foreign training, in fact only went abroad for the first time near the end of his too short life.

He attended the Allen School at West Newton, Massachusetts, and later lived in Roxbury where he studied architecture with Mr. Clarence Luce who was designing somewhat erratic country houses. His parents were musical; his brother was Prof. Webster Wells of the Massachusetts Institute of Technology. When I first came to know him well he was peculiarly lonesome for companionship, for his personality was shy, intense and introspective, and he had little in

common with the young men of his own age. Neither the social life nor the athletics of his contemporaries claimed him, partly I think because he felt that he would not shine in either—and he wished to do well anything he undertook—but more because his enjoyments were those of music, literature and the arts, to all of which he was exquisitely sensitive.

At a university he might have formed one of a group, especially at Oxford, but architectural draughtsmen as a rule were not of his kidney. He would have been an impossible Bunthorne had he never become an aesthete, for his humor was keen and caustic and he had an almost fatal ability to see through shams. He had much of Heine in him and would undoubtedly have pleased Bernard Shaw, though I doubt if Shaw would have pleased him. At the time I was in John Sturgis' office he was with Peabody and Stearns. Both of us were fed upon the Victorians of the seventies—Edis, and Burges and J. K. Colling, and neither of us liked it and in that respect had a bond in common. But I did not know what I wanted—Wells did. He had a habit of dropping into my room of an evening in his absent-minded way. One had to force him to sit for he would stand near the door with a dripping umbrella in his hand, as if intending to dodge out at the slightest alarm. For a few minutes there would be a perceptible silence, then, like drops of water, hesitating words would form into a stream of conversation which was a delight to me. He must have felt my enjoyment, yet suddenly he would apologize for talking and with-

draw into a silence which could only be broken, as it began, with hesitating words. It was not only shyness, it was genuine modesty.

One night an amazing thing happened. He appeared with two large rolls under his arm, quietly undid them and we tacked them on the wall. Two beautifully rendered large scale elevations of the Palazzo Cancellaria and the Palazzo Farnese. Up to this time no large renderings had been made in America. They were light in tone, fine in line. I had never seen anything like them. I asked, "Did you make those, Joe?" "Yes, that is architecture." So little had the trend of the time influenced his intuitive knowledge.

I went to Asia Minor and Greece and Italy and after three years came back. I had found what Wells had always known. He was then with McKim, Mead and White, and they appreciated the calibre of the man.

McKim told me once that Wells had impelled him to study Italy and Greece, though Wells had seen neither.

Wells had blossomed out into an amiable cynic, a lover of Voltaire, rubbing his hands with mischievous glee when he impaled a sham. He was fond of mordant epigrams, but underneath, like Whistler, he had one of the kindest of hearts and more than friendship for all sincerity. He was merciless in his judgment of men who

played to the gallery, and his explanatory definitions of their motives was unique. Among these he gained the reputation of having a malicious tongue, but no man gave more praise to distinguished work, or fostered it more. He was blood brother of the great Florentines, and upon his first visit to Florence his enthusiasm was shown

in a letter written home, in which he quoted Browning's motto of Queen Mary, "Open my heart and you shall see graved inside of it 'Italy'."

Before the influence of Wells was felt, the work of McKim, Mead and White had in it much of the École des Beaux-Arts training and picturesqueness. The first sketches for the Boston Public Library drawn by Stratton were not academic. Later McKim was enamored of the Bibliothèque Sainte Geneviève, but it was Alberti's San Francesco at Rimini that finally lent its touch, and although I have no proof, I

suspect Wells of influencing the decision.

Breadth of conception, accompanied by fine and studied detail was natural to him. The youth who, surrounded by Victorian banalities, turned to the Cancellaria and the Farnese as epitomes of studied design, had set himself a standard which he upheld. The result is most manifest in two buildings in New York, the Villard house on Madison Avenue and the Century Association on 43rd Street, both of which



RUSSELL & ERWIN BUILDING, NEW BRITAIN, CONN.

McKIM, MEAD AND WHITE, ARCHITECTS

From a drawing by Joseph Wells

are largely due to Wells and both of which are in their way masterpieces—and by no means plagiarisms. The huge masses of skyscrapers are of such a compelling ensemble, that the delicacies of detail to be found in Laurana's Palace for Federigo d'Urbino and in Amadeo's work at Bergamo and Pavia are lost in the size of the

vations of belief in his profound and deep-seated contempt for mankind. This he took in good part, and returned the compliment by a ready and all-embracing depreciation of his intimates, aiming his barbed wit with a shrewd strain of intelligence that more than once hit the mark.

"Save in physical appearance he had



VILLARD MANSION, NEW YORK CITY

McKIM, MEAD AND WHITE, ARCHITECTS

Inspired by Cancelleria Palace

structures. But Wells was dealing with buildings of the same character as those of the Renaissance and was a worthy follower of the masters of that fine art.

In "A Chronicle of Friendships" by Will Low, in Scribner's, 1908, the following appreciation appears:

"Though Wells had not a drop of bitterness in his nature, it pleased his humor to play the cynic, as it pleased his friends to humor him and to accentuate their asser-

much of Thackeray's Warrington in Pendennis and the gentler side of his character was shown by his love for music. Through Wells' activity the concerts of chamber music, by four musicians selected from the orchestra conducted by Theodore Thomas, were given in the large studio in Thirty-sixth Street, which Saint-Gaudens had built for his work.

"Some forty men—painters, sculptors, and architects for the most part—were

joined in this enterprise, and for two years, every Sunday afternoon from October to May, we sat or reclined at our ease on the divans which ran along the walls of the studio, listening with the pleasant accompaniment of tobacco, to the two violins, the viola, and the 'cello; and Bach, Mozart, and Beethoven were of the company."

And Saint-Gaudens himself, who was very fond of Wells, made the following remark:

"And then Wells, the spitfire, will come on the scene, leave all his maliciousness off as he enters the house, as a turtle would its shell, and become one of the most companionable of men."

Occasionally I had the good fortune to attend these concerts, when it was delightful to see the blossoming out of Wells' nature and his pleasure. He was responsible for many of the programmes and his choice of music was noble in character, like his architectural designs.

One cold rainy morning I went into McKim's office and asked for Joe. I was told he had been ill with pneumonia but was coming in for the first time since his illness. Soon he appeared, looking very frail. Nothing would do but that he must take me over the Century Club just being completed, and later to the large dining room of the Plaza, reeking with wet plaster. He was enthusiastic beyond his strength, and I got him away as soon as possible to his room, parting with him at a station of the Elevated. Next morning, near my residence in Boston, I met his brother and mentioned that I had been with Joe yesterday. "I have just received a telegram of his death," he said. Thus I was one of the last to be with him, the man who only lived into his thirties, and who did as much to keep the torch of fine architecture glowing as any man of his time.

In the following letter from Mr. W. M. Kendall, of the firm of McKim, Mead and

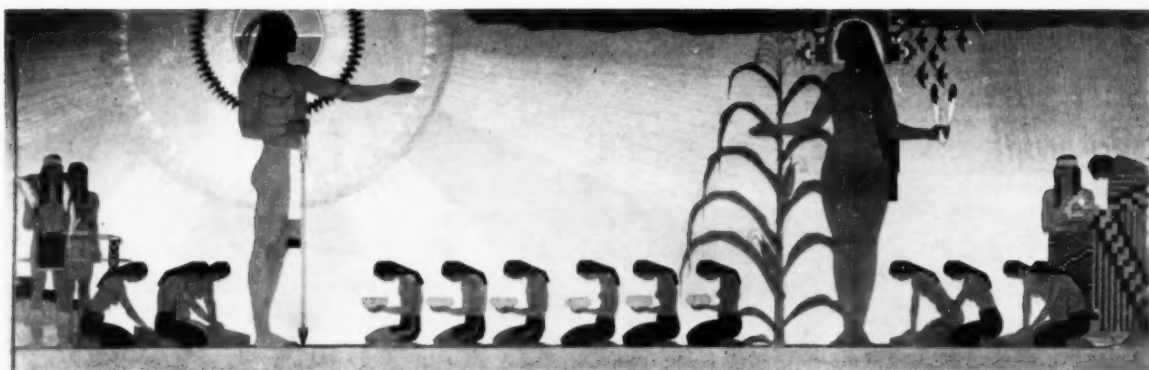
White, to Mr. Royal Cortissoz, the influence of Wells upon the work of McKim, Mead and White is discussed.

June 22, 1928

"My dear Royal: You remember the other day we were discussing our late friend Wells' influence upon the work of the firm, and his high standing among the architects of the country. No one feels that more strongly than I do, but as I said, we must not lose sight of the fact that as far as I know, and Van der Bent agrees with me, his work was always entirely confined to the details of buildings. In that he was simply supreme. Nobody before or since has equalled him in the appropriateness and scale of his ornamentation and this, of course, gave great character to buildings he decorated. The ensemble of these buildings, however, and even, by implication, the kind of detail, was decided invariably by a member of the firm—Charles F. McKim or Stanford White, and the Villard Group and the Century Club are examples of exactly what happened. The former never could have been ascribed to White, the latter never to McKim. It is a singular fact that we have had in our office many men who, although they were far from reaching Wells' standard in ornamental detail, showed great ability in that line, but when they retired from the office and set up for themselves, surprised us by their shortcomings in the general design of the ensemble of their buildings. Of course this is the most important part of an architect's work.

In addition to Wells' genius in detail, the important and perhaps the most important influence he had upon the firm was his stand for the Classic and particularly the Italian style of architecture. Too much cannot be said with regard to this latter point.

Yours very truly,
W. M. Kendall



LEGEND OF EARTH AND SUN
MURAL DECORATION BY MAYNARD DIXON

THE ARIZONA-BILTMORE HOTEL, PHOENIX, ARIZONA

ALBERT CHASE McARTHUR, ARCHITECT

SITUATED at the foot of a small range of mountains fringing the desert some eight miles northeast of Phoenix, the hotel overlooks the city at an elevation of nearly two hundred feet and commands a splendid view in every direction. The rarefied atmosphere, the rich western sunsets, the brilliance of colors in the mountains of the Salt River valley, all combine to give an excellent locale to the architect endeavoring to effect a close liaison between art and nature.

Throughout the effort of the architect has been to design in the spirit of Frank Lloyd Wright's concepts of harmonizing the building with the terrain, of bringing out the inherent natural qualities of the materials used in the construction, and of considering as integral parts of the architectural scheme such elements as the furniture, the interior decoration, the system of illumination, and the like. On the architect's invitation, Mr. Wright came to Arizona and all the technical details for the use of the concrete-block type of construction were worked out under his direction.

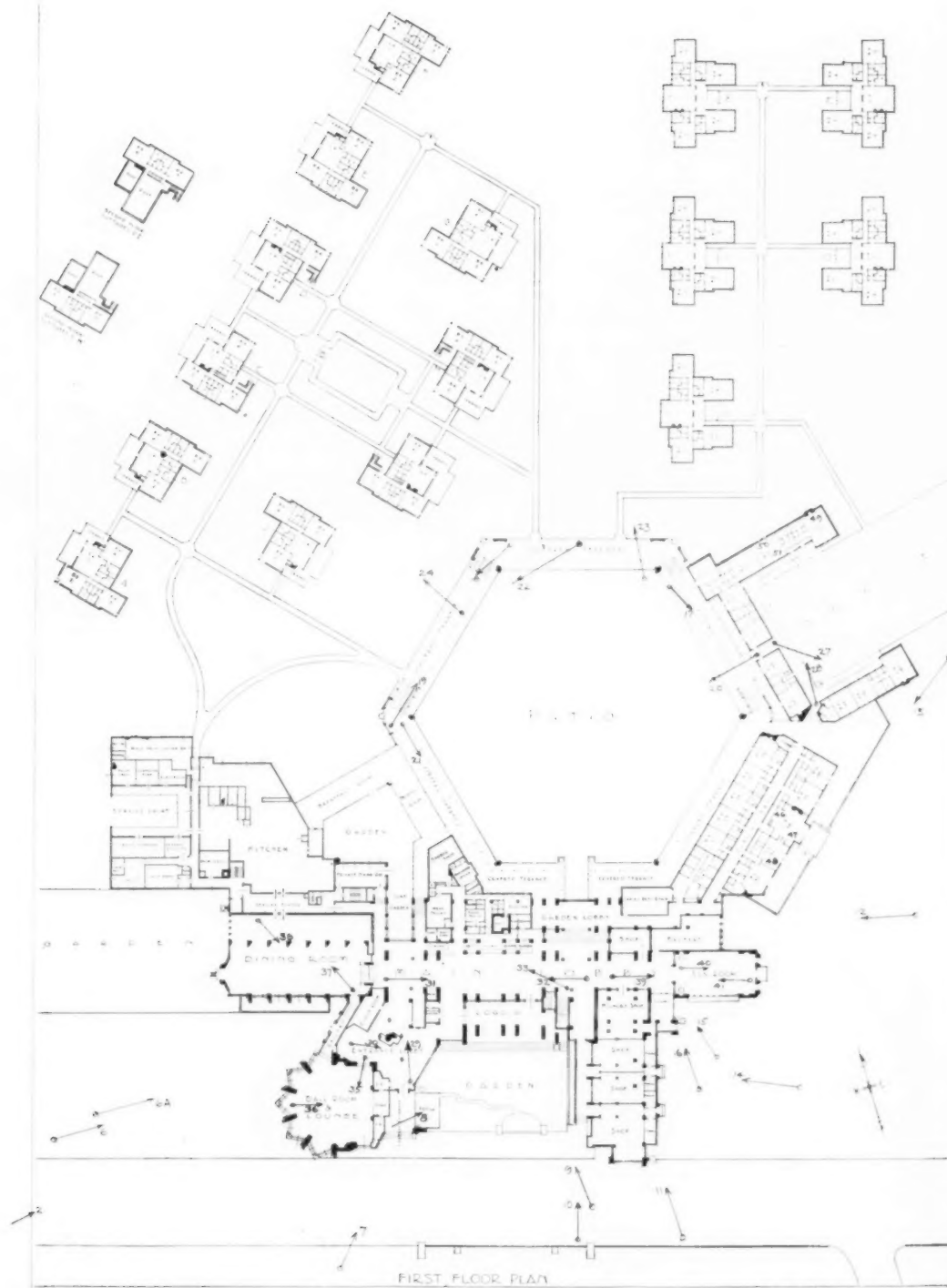
In general the textile-block slab construction consists of concrete blocks about two or three inches thick laid on end with

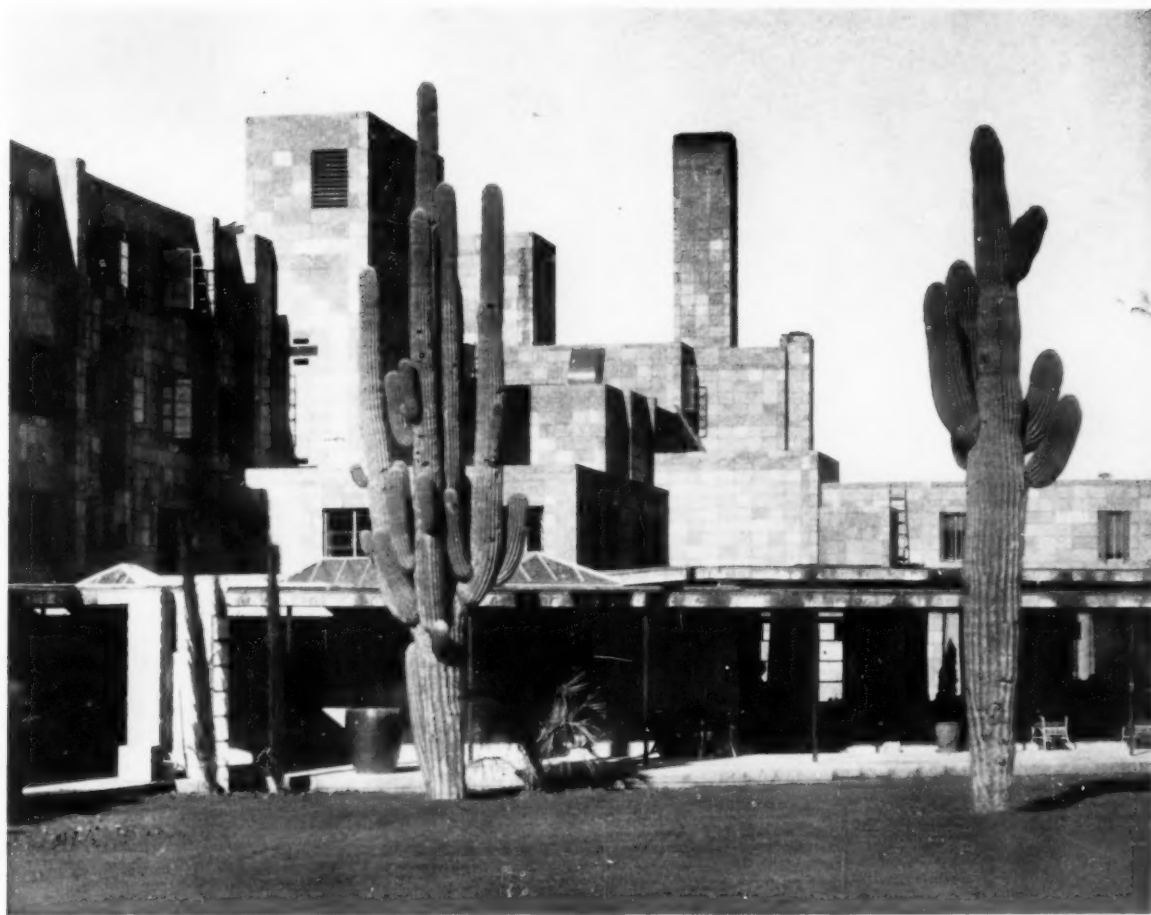
interlocking grooves and reinforced horizontally and vertically by steel rods. Cross struts of steel tie together the outer and inner shells of the wall. Grouting cement is poured into the holes through which the rods extend, and this makes structurally homogeneous, and also waterproof, the entire system of concrete blocks. Floors and roofs are of reinforced concrete tiles and joist-knitted to exterior and interior walls, forming a continuous construction. The walls can be made of varying reveals, the air space between the vertical slabs of the interior and exterior wall faces serving to reduce the passage of heat through the walls.

A factory was set up on the hotel site and all the blocks were made and cured there. The natural warm gray of the concrete was desirable as a background of subdued color; consequently the blocks were left without any sort of treatment.

A standard size block, eighteen inches in length and thirteen and a half inches in height, was selected as the unit of measurement on the plans and elevations, and in the actual work of construction. A half-unit block, nine by six and three-quarters

ARIZONA BILTMORE HOTEL PHOENIX ARIZONA





VIEW FROM PATIO
ARIZONA-BILTMORE HOTEL, PHOENIX, ARIZONA
ALBERT CHASE MC ARTHUR, ARCHITECT

inches, was also used, as shown in the photographs.

All working drawings were made without the customary dimensions in feet and inches. Instead the architect used a system of unit lines spaced six blocks, or nine feet, apart on the plans, and numbered and lettered to show the exact location on the respective drawings. This method was carried throughout all the details. After the first course of blocks was laid according to the plans, the building was continued from the various elevation drawings, every block being designated thereon. These unit sizes necessarily determined the fenestration and the door openings.

The decorated blocks were designed by the architect, the actual models being worked out by Emry Kopta, sculptor. The architect's signature block was designed and modeled by Mr. Kopta.

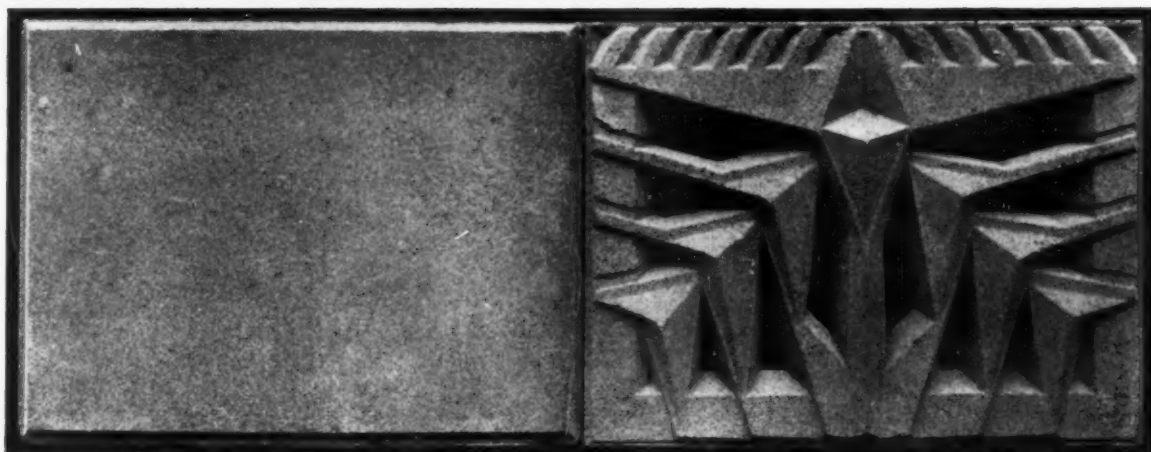
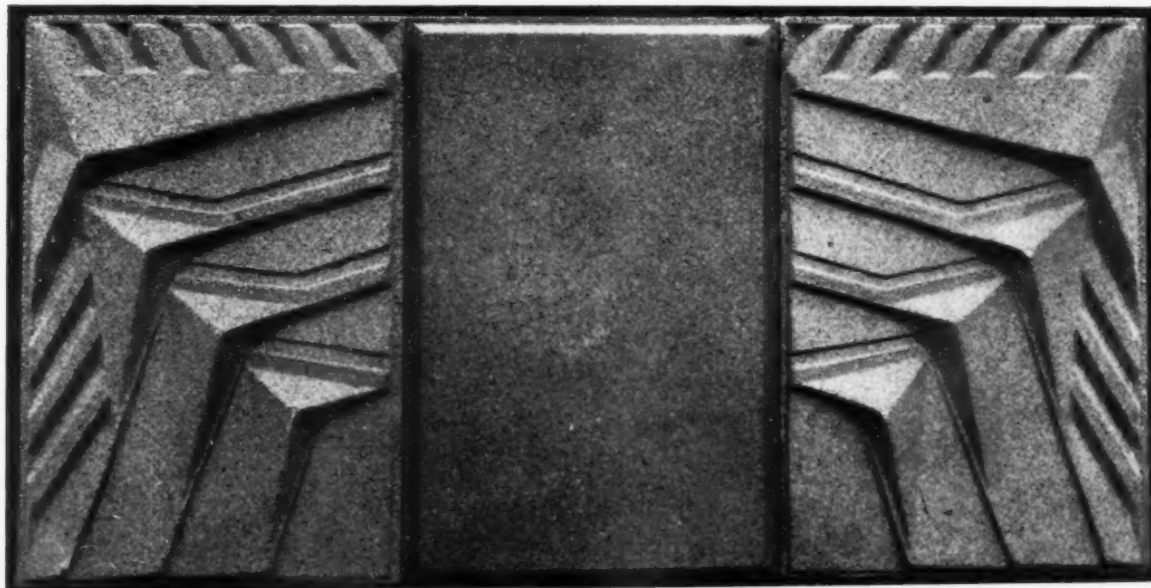
The scheme of pier construction with the plate glass extending from floor to ceiling between piers permitted on the interior an architectural treatment similar to the exterior. By using textile-blocks for corridors and the public space of the interior the architect secured a certain harmony between the inside and outside of the buildings, at the same time bringing unity into the whole design. No treatment for finish or color was given the interior blocks, the



ARCHITECT'S SIGNATURE BLOCK

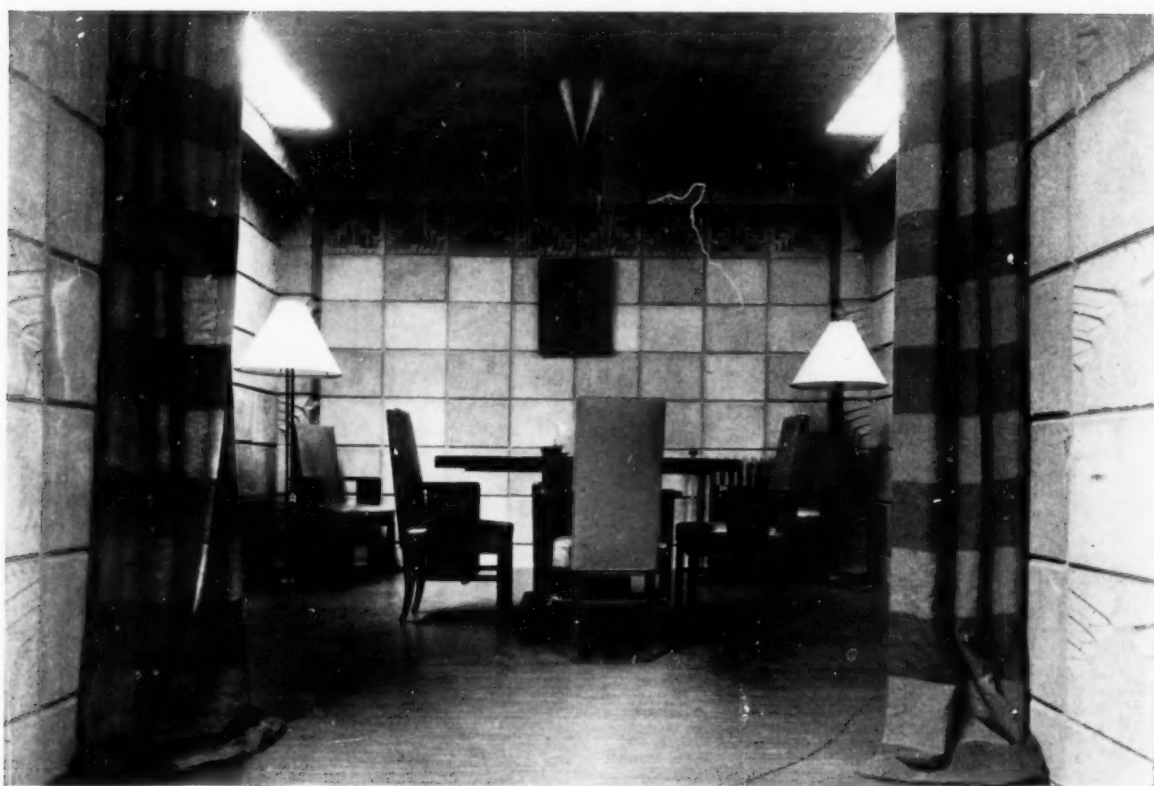


SINGLE BLOCK UNIT IN CAST CONCRETE



Emory Kopta, Sculptor

DETAILS OF CAST CONCRETE BLOCKS
ARIZONA-BILTMORE HOTEL, PHOENIX, ARIZONA
ALBERT CHASE MC ARTHUR, ARCHITECT



CORNER OF MEN'S ROOM
ARIZONA-BILTMORE HOTEL, PHOENIX, ARIZONA
ALBERT CHASE MCARTHUR, ARCHITECT

warm gray of the concrete again predominating as a quiet setting for the high color of the textiles.

The use of concrete block walls greatly simplified the problems of interior decoration. The floors and ceilings only remained to be treated. The cement floors of the public circulation were stained a dull gray-green. The ceilings were finished with Dutch metal leaf at a cost that would have been prohibitive had the walls as well been plastered and decorated.

The lighting system in the Biltmore Hotel likewise was considered as an integral part of the architectural design, the architect deliberately seeking to avoid the after-thought effect of the usual methods of illumination. In the main the lighting scheme consists of substituting for the concrete blocks a number of pressed glass

blocks set in frames of sheet copper and flush with the walls. These blocks measure eight and three-quarters inches by six and a half inches. The glass is three quarters of an inch in thickness, an almost perfect diffusing medium, being from ninety-two per cent to ninety-six per cent efficient. Reflectors are used behind the glass blocks.

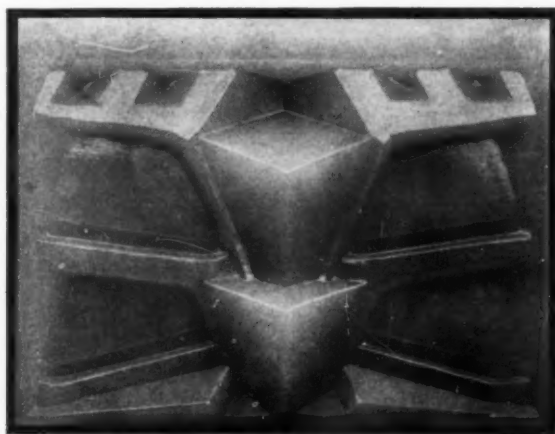
Copper chemically treated to produce a green patina was used for most of the interior trim in the public portions of the buildings as well as for the pitched roofs. A total of thirty-two thousand five hundred pounds of sheet copper was required.

All the hotel furniture and interior decorations, including textiles, ironwork and the like, were designed by the architect, assisted by his brother, Warren McArthur, Jr. The furniture in the men's room, however, was designed by Kem Weber of Los



VIEW OF GARDEN APPROACH
ARIZONA-BILTMORE HOTEL, PHOENIX, ARIZONA
ALBERT CHASE MC ARTHUR, ARCHITECT

Angeles. Decorations designed by Maynard Dixon of San Francisco were painted on crash linen and used as hangings in the dining room.



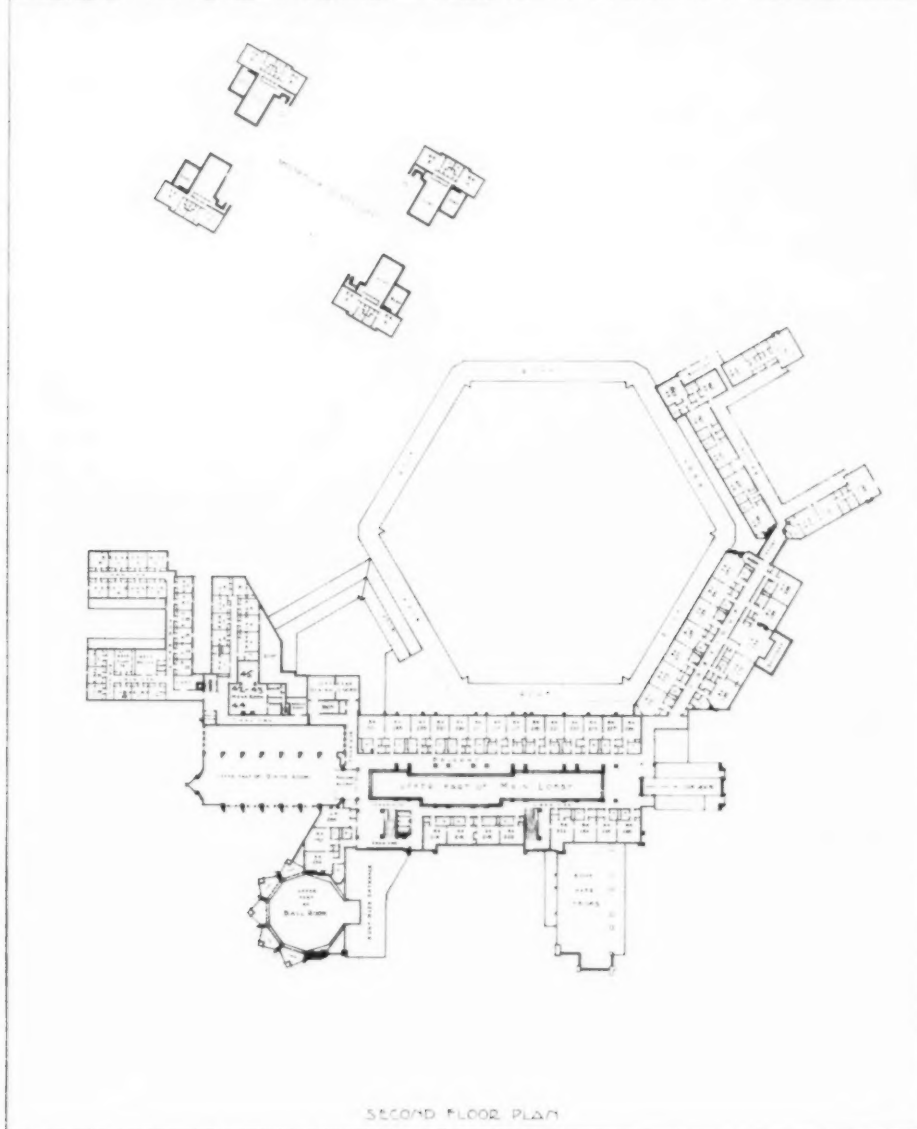
GLASS BLOCK USED IN ILLUMINATION SYSTEM
ARIZONA-BILTMORE HOTEL, PHOENIX, ARIZONA
ALBERT CHASE MC ARTHUR, ARCHITECT

PORTFOLIO
OF
CURRENT ARCHITECTURE



BRIDGE AT ENTRANCE
Arizona-Biltmore Hotel, Phoenix, Arizona
ALBERT CHASE McARTHUR, ARCHITECT

ARIZONA BILTMORE HOTEL PHOENIX ARIZONA



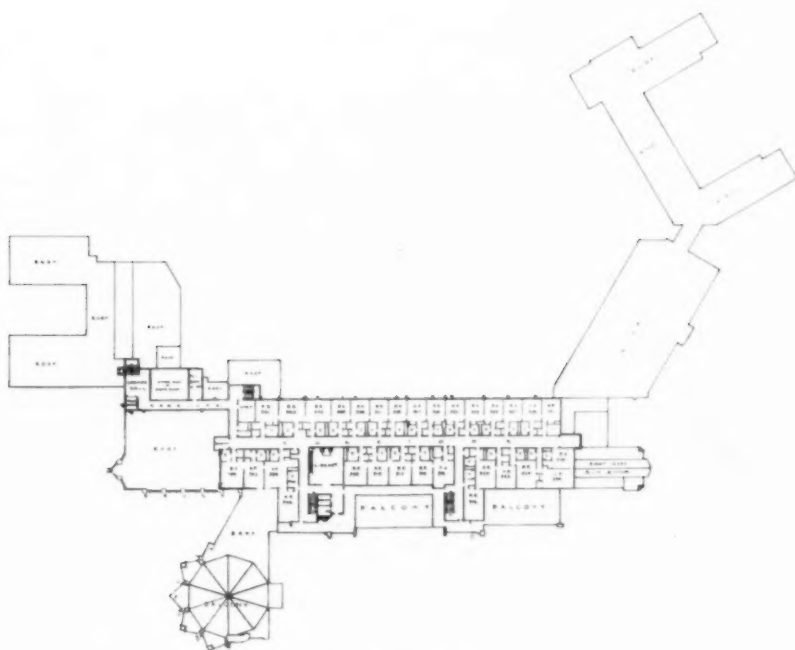


VIEW FROM GARDEN
Arizona-Biltmore Hotel, Phoenix, Arizona
ALBERT CHASE McARTHUR ARCHITECT

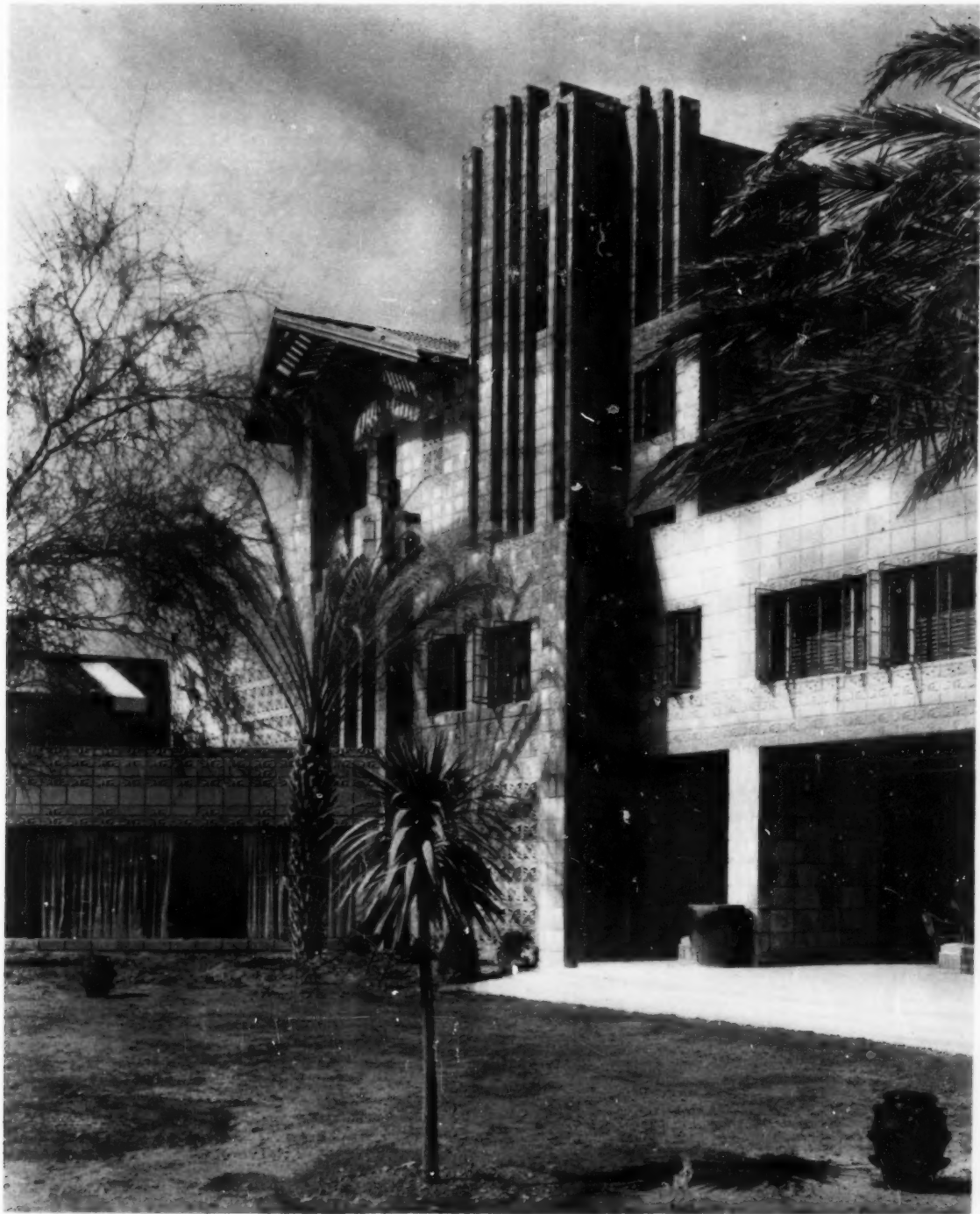
ARIZONA BILTMORE HOTEL PHOENIX ARIZONA



FOURTH FLOOR PLAN



THIRD FLOOR PLAN



ENTRANCE FROM GARDEN
Arizona-Biltmore Hotel, Phoenix, Arizona
ALBERT CHASE MCARTHUR, ARCHITECT





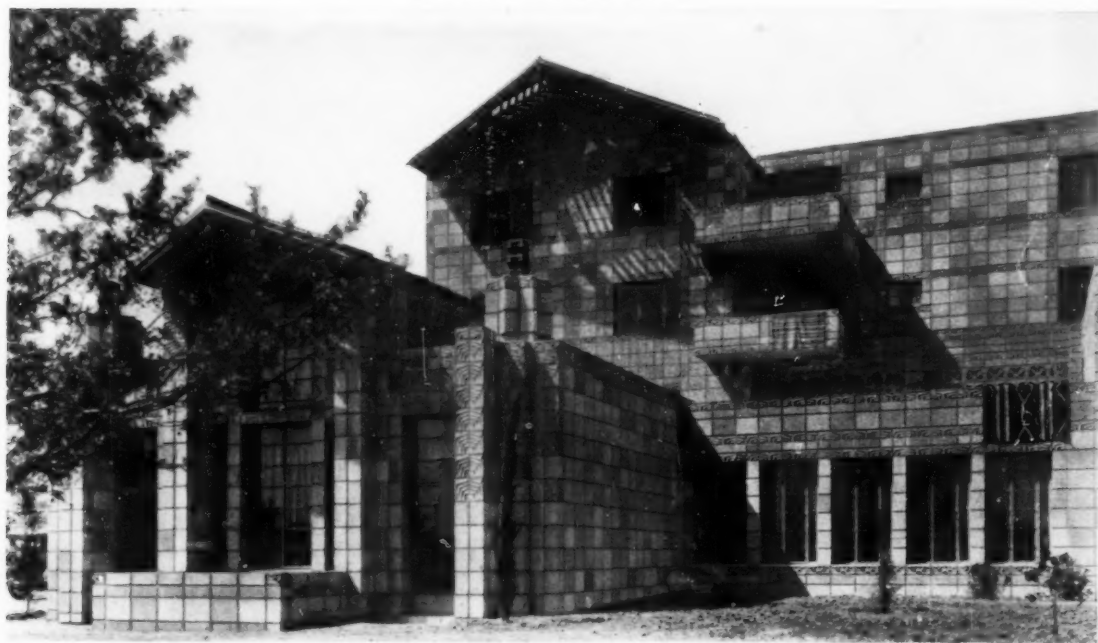
VIEW OF BUNGALOW FROM PATIO

Arizona-Biltmore Hotel, Phoenix, Arizona

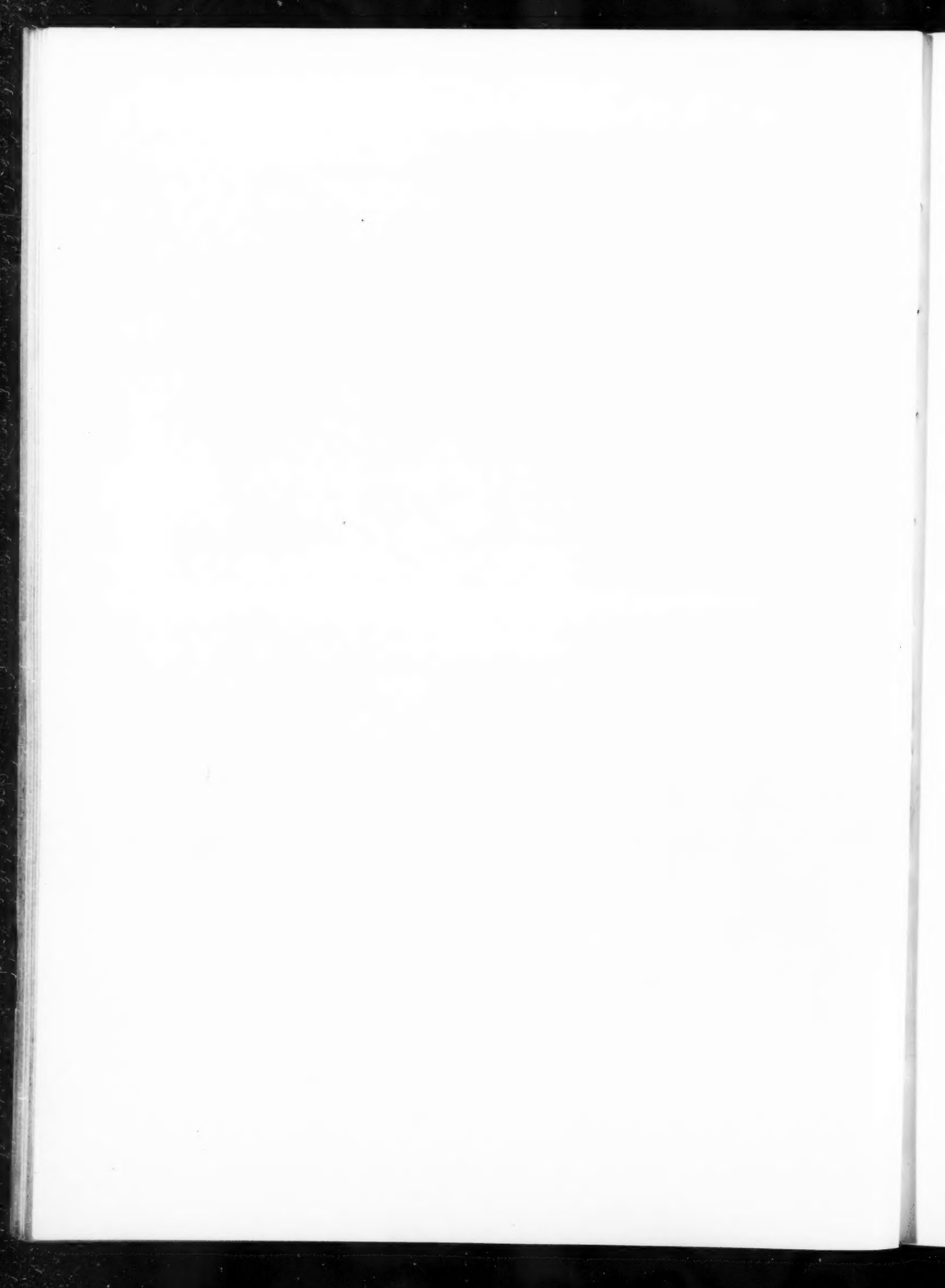
ALBERT CHASE MCARTHUR, ARCHITECT

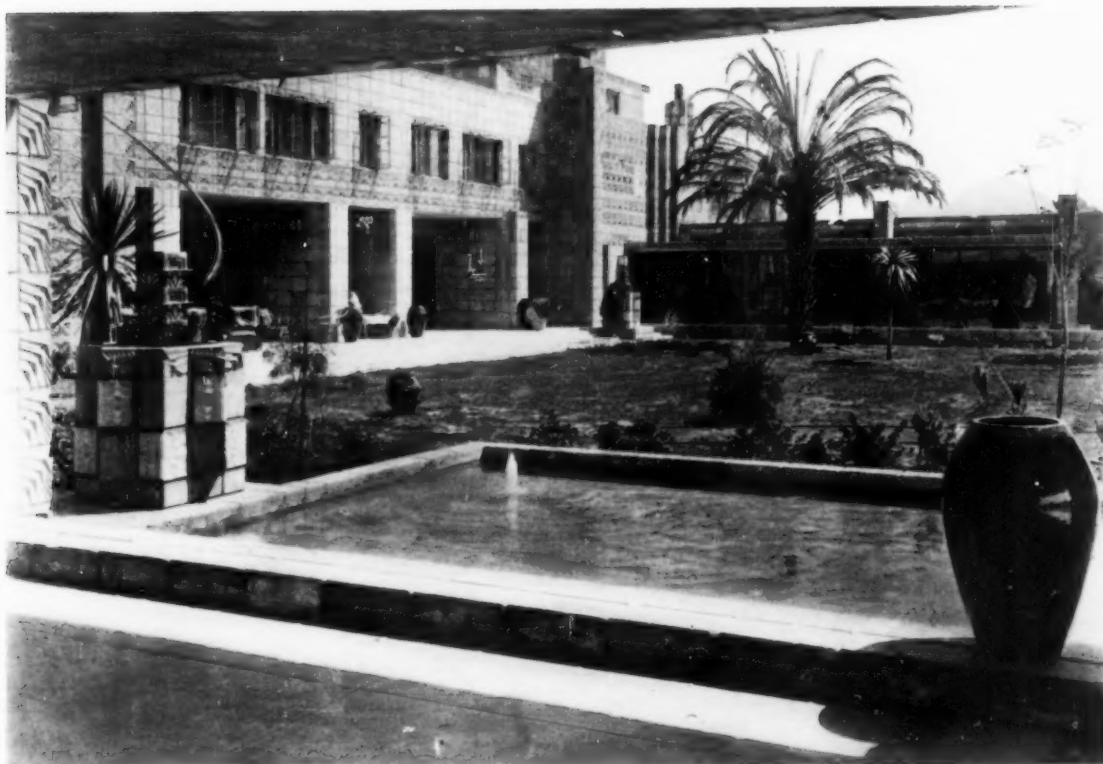


MAIN ENTRANCE

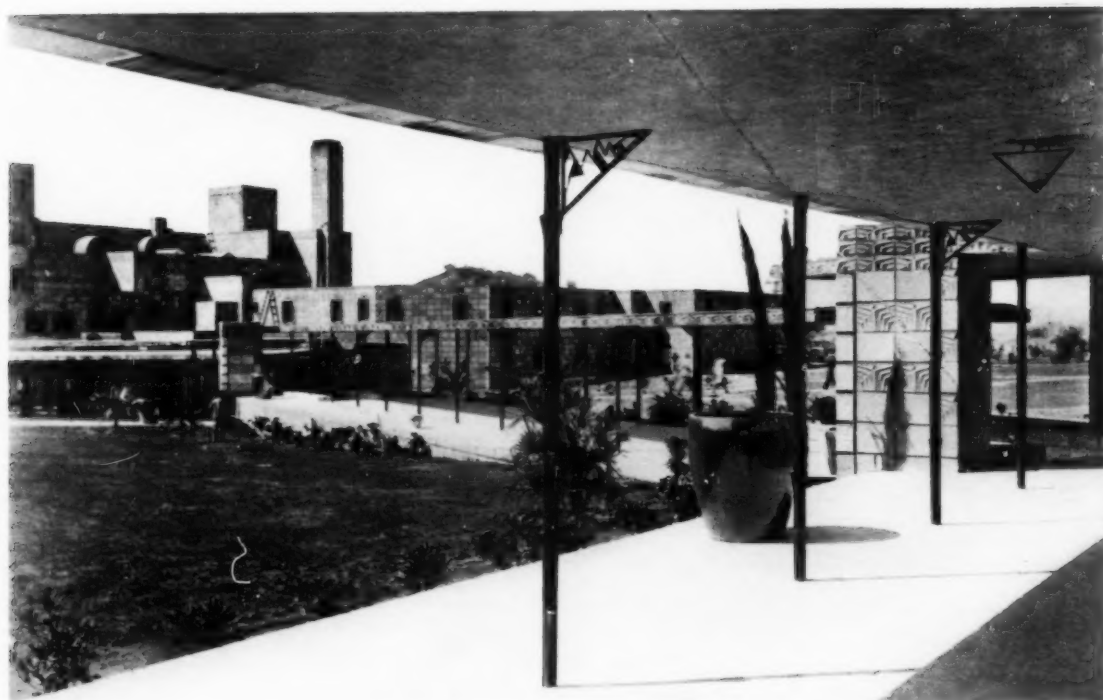


VIEW EAST FACADE
Arizona-Biltmore Hotel, Phoenix, Arizona
ALBERT CHASE McARTHUR, ARCHITECT

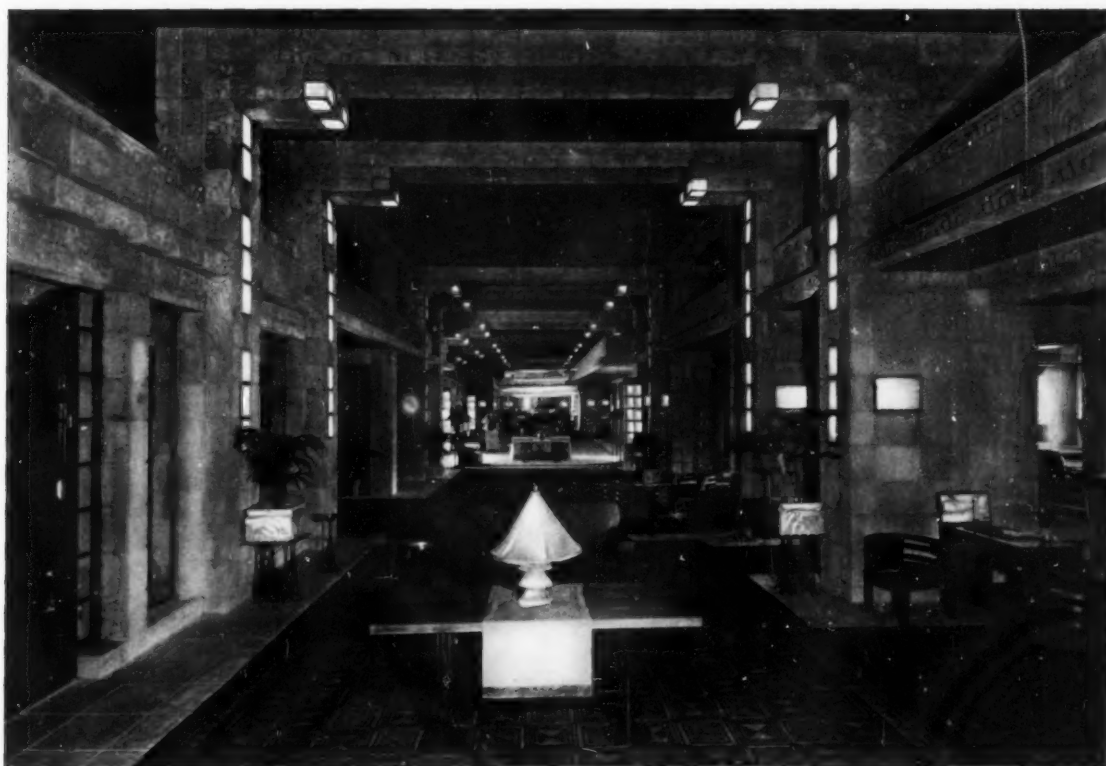




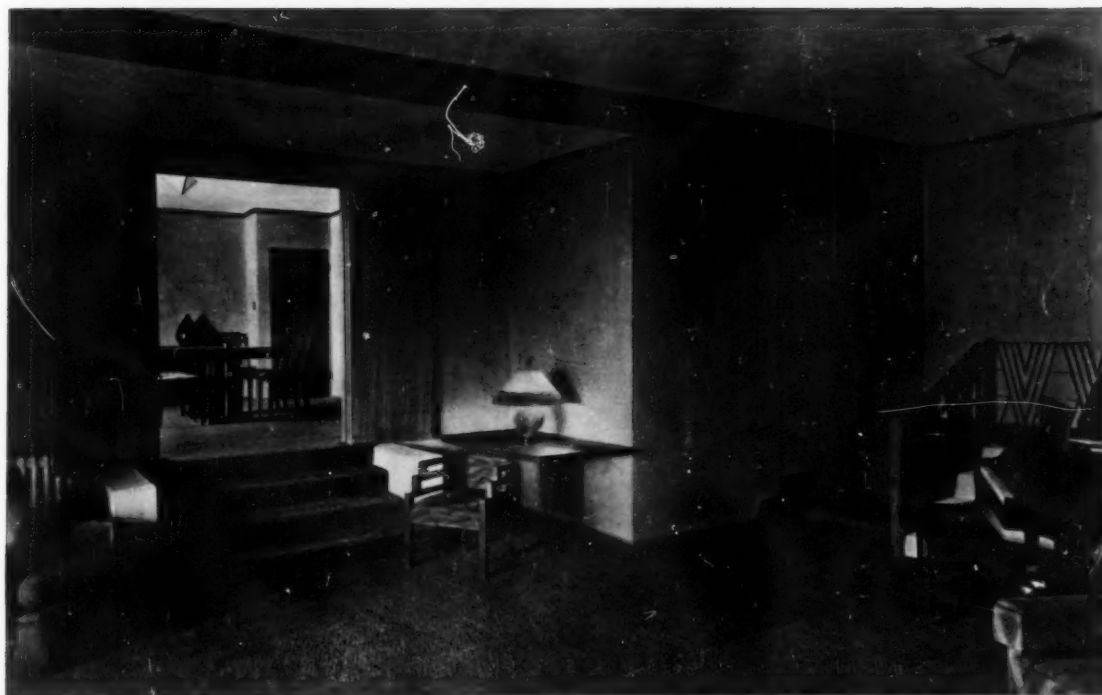
VIEW OF POOL IN GARDEN



PASSAGE AROUND PATIO
Arizona-Biltmore Hotel, Phoenix, Arizona
ALBERT CHASE MCARTHUR, ARCHITECT



MAIN LOBBY



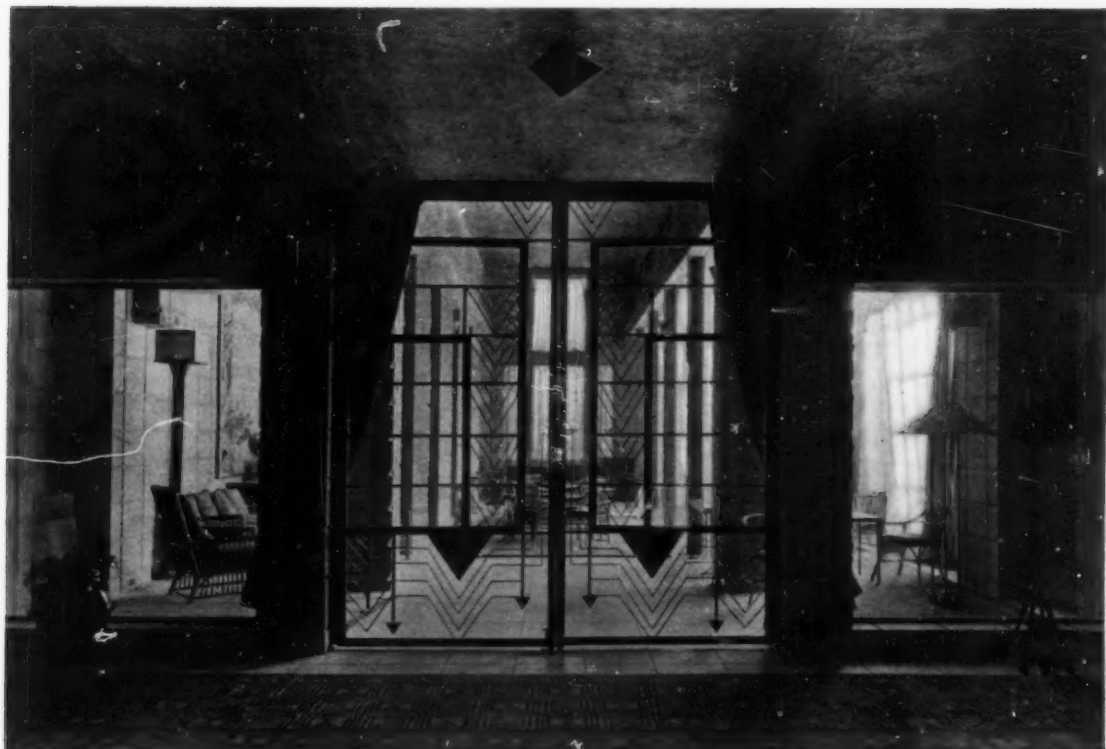
LIVING ROOM OF FIVE-ROOM SUITE

Arizona-Biltmore Hotel, Phoenix, Arizona

ALBERT CHASE McARTHUR, ARCHITECT



MAIN DINING ROOM



VIEW THROUGH IRON GRILLE TO SUN ROOM FROM MAIN LOBBY
Arizona-Biltmore Hotel, Phoenix, Arizona

ALBERT CHASE McARTHUR, ARCHITECT



TYPICAL BEDROOM SHOWING FURNISHINGS
Arizona-Biltmore Hotel, Phoenix, Arizona
ALBERT CHASE MCARTHUR, ARCHITECT



CORNER OF DINING ROOM
Arizona-Biltmore Hotel, Phoenix, Arizona
ALBERT CHASE McARTHUR, ARCHITECT



CORNER OF DINING ROOM
Arizona-Biltmore Hotel, Phoenix, Arizona
ALBERT CHASE MCARTHY, ARCHITECT



FIREPLACE IN MEN'S SMOKER

Arizona-Biltmore Hotel, Phoenix, Arizona

ALBERT CHASE MCARTHUR, ARCHITECT



SUN PORCH

Arizona-Biltmore Hotel, Phoenix, Arizona

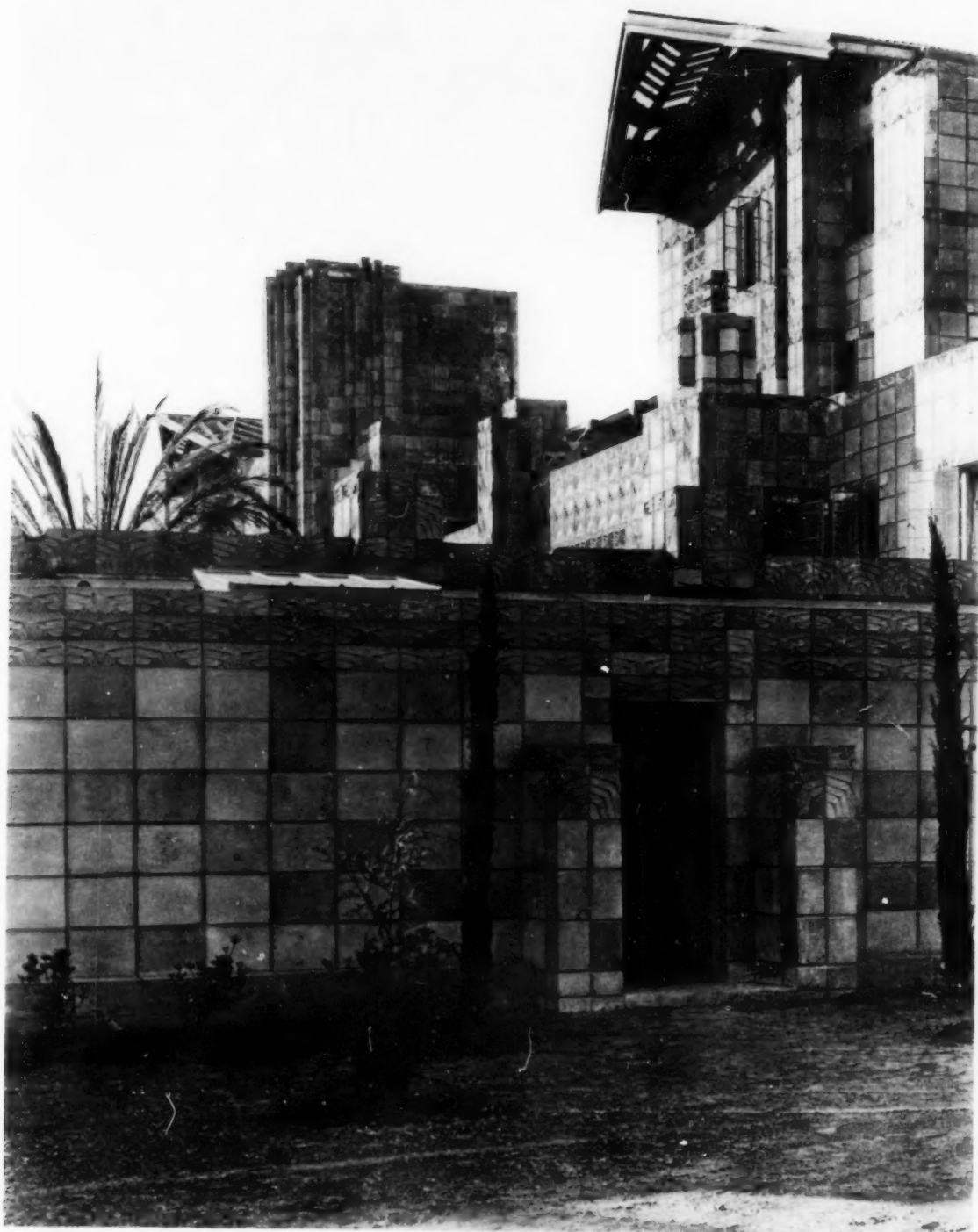
ALBERT CHASE McARTHUR, ARCHITECT



CORNER IN MEN'S SMOKER
Arizona-Biltmore Hotel, Phoenix, Arizona
ALBERT CHASE McARTHUR, ARCHITECT



STAIRWAY TO BASEMENT
Arizona-Biltmore Hotel, Phoenix, Arizona
ALBERT CHASE McARTHUR, ARCHITECT



MINOR ENTRANCE DETAIL
Arizona-Biltmore Hotel, Phoenix, Arizona
ALBERT CHASE MCARTHUR, ARCHITECT

NORTH ITALIAN BRICK CHIMNEYS

BY MYRON BEMENT SMITH

PART I

IT HAS been observed that the better architects of the past did not feel themselves above the more humble expressions of their craft. They worked in brick, stucco and rough stone as easily as their less gifted contemporaries achieved certain effects in well-cut granite, bronze or polished marble. This mastery of the technique of materials placed such men as Michelozzi, Bramante and Palladio in command of an orchestra whose breadth of expression gives their

inch thickness, a five inch width and a length of eleven inches. Four courses to the foot seem to be usual, with a likelihood of their running to thirteen rather than under twelve inches. Then there are thin bricks, one-and-a-quarter inches thick, that are used for paving terraces and the floors of humbler houses. These thin bricks are found also in many chimneys since they match the standard brick in color and surface. The third form of brick is similar to a



FIG. 1. A GROUP OF CHIMNEYS AT PAVIA

rivals, in comparison, the cold colorless tone of a flute

The chimneys which are illustrated in this series of articles with a few exceptions are built of brick. From the brick size it is possible to scale the photographs of those chimneys which could not be measured with the yard stick. But remember always that the Italian bricks are much larger than those of America. For an average hand-made Italian brick (and all of these are hand-made), one can be fairly certain of a two-and-a-half to two-and-three-quarter

flat tile. Its ordinary use is under curved roof tile where the length of some sixteen inches permits the spanning of rafters. The thickness is just over an inch and the width varies from seven to nine inches. The manufacture of thin brick is similar to regular brick, with the same color and texture after burning.

Because the brick kilns of North Italy are never far to find it has been, and is today, an easy matter to get special brick for larger sizes or with molded profiles. All one has to do for a profiled brick is to cut a



FIG. 2. CERTOSA OF PAVIA



FIG. 3. CERTOSA OF PAVIA



FIG. 4. CERTOSA OF PAVIA



FIG. 5. CERTOSA OF PAVIA

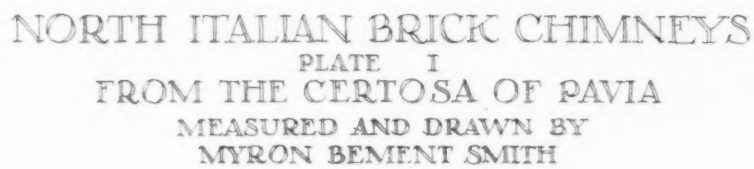




FIG. 6. VENETIAN KITCHEN CHIMNEY AT MIRANO



FIG. 7. BINASCO, NEAR MILANO



FIG. 8. BINASCO, NEAR MILANO



FIG. 9. CORTE, NEAR LODI



FIG. 10. S. GIULETTA, PROV. PAVIA



FIG. 11. FONTANE, NEAR PARENZO



FIG. 12. PORTOGRUARO, FRIULI

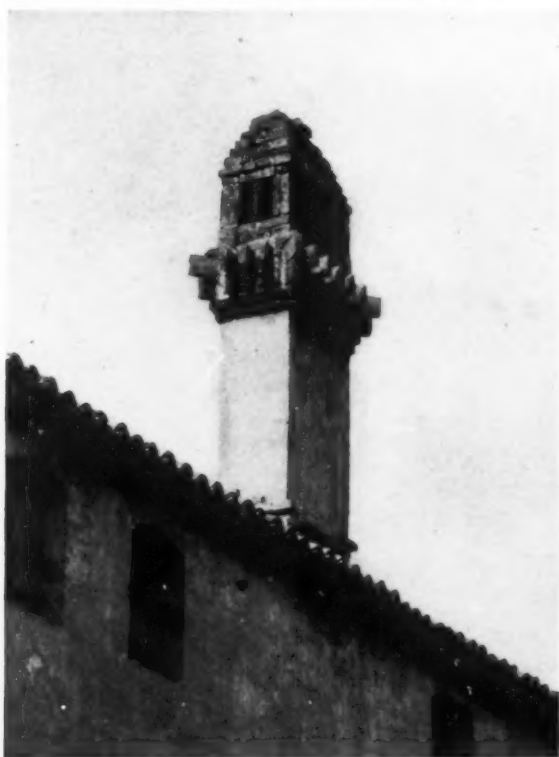


FIG. 13. STRADELLA, NEAR MANTUA



FIG. 14. PAVIA





FIG. 15. MANTUA



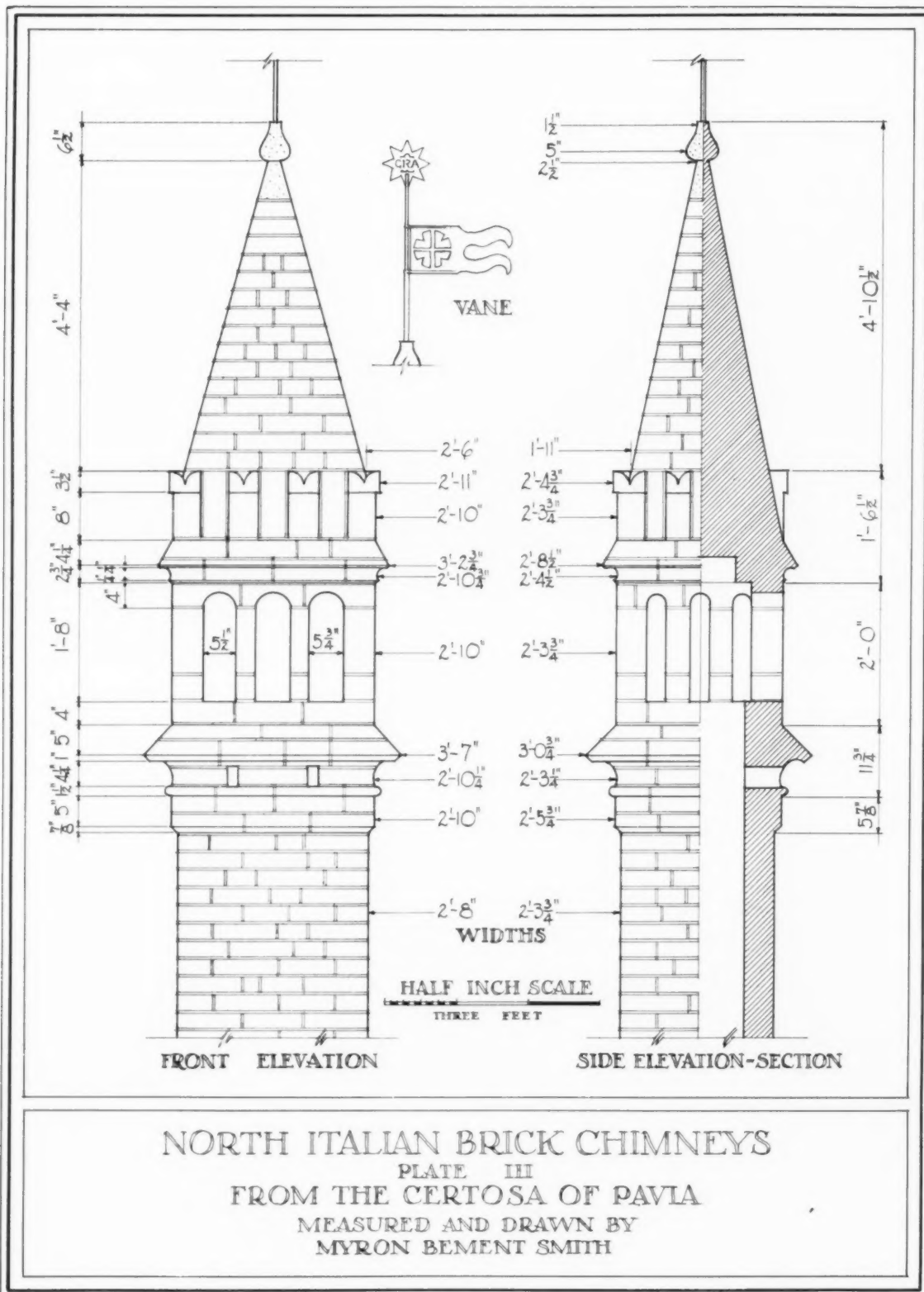
FIG. 16. S. LANFRANCO, PAVIA



FIG. 17. NEAR MONZA, PROV. MILANO



FIG. 18. PIAZZA CARDINAL FERRARI, MILANO



reverse pattern in wood to tuck in the side or end of the mold. The workman holds it in place with his thumb and out comes any shape you may wish, provided the over-all dimensions do not exceed the standard size. For a larger size you knock together a form of wood, give it to the *padrone* and at the end of three weeks or a month you get your special bricks, and at a price only double that of run-of-kiln. To obtain molded bricks in America is not quite so simple a matter.

When the mason has time at his disposal, and in Italy one generally has, he will occasionally let himself go and do something in carved brick. The many examples shown from the Certosa of Pavia have more carved and less molded members than is evident without close inspection.

Curved roof tile is another clay product frequently used. They are about seventeen inches long if fully exposed. As these are made in the same pits and kilns as the brick they all weather together in proper harmony. The mortar is coarse stuff, full of gravel and river sand. It is used generously in thick beds and counts as mortar should. At times it plays the part of stucco or again is spread thin as *intonaco*. Here it has a way of falling off that endears it to all but the spick-and-span school of architects. On some of the Certosa chimneys a special coat of gesso is thrown on and troweled out flat for fresco decoration. This white gesso is made of lime slaked five or ten years in deep pits before being mixed with fine gray sand. The fresco bands and monograms are made of earth colors and are put on while the gesso, or stucco as we call it, is still damp.

When the house is receiving its coat of whitewash or colored water-paint the chimneys may be given a lick-and-a-promise swipe with the long handled brush. Figs. 7 and 8 have come in for this touching up, though in these cases the whitewash was put on only where it would do the most

good. The only other materials used are lead for flashings and wrought iron for stay rods and vanes. In a later article I shall have something to say of the designers and craftsmen who built these curious, sometimes beautiful and always interesting smoke vents.

Figures 2, 3 and 4 illustrate, respectively, the measured drawings of plates 1, 2 and 3. This group of the Certosa of Pavia is on the roof of the Palazzo Ducale, the seventeenth century Baroque building to the right as one faces the church proper. F. T. Ricchino is recorded as the palace architect.

A typical Friulian or Venetian kitchen chimney is shown (fig. 6). The fire is made on a platform under the flue, which allows a free passage around and behind it making possible the use of all the fire for heating and cooking. The iron pot hanger and fire tools always include a mechanical spit.

Figures 7 and 8 are from the same Lombard farmhouse and show what can be done when one knows how to do it. A few carved bricks are used but the beauty of these flues lies in well expressed materials and perfect scale. Fig. 9 is unusual because of the dentils and the round vent at the base, grilled over with bits of half-inch tile. In fig. 10 there are pieces of curved roof tile used at the end in grilling patterns and again in the gable to lighten the otherwise heavy mass of masonry.

Figures 11 and 12 are from the Adriatic region. Figs. 11 and 13 might once have had curtain walls supported by the projecting brackets as shown (fig. 3). In fig. 14, from Pavia, we get an idea of the weathering effect of thin gesso and soot. From Mantua comes number 15, a recently erected chimney in cement and roof tiles. But the idea is an old one as can be seen in fig. 18, from the dependance of a church in Milano. The last we are noting in this article (No. 17) is a straight brick and roof-tile job, low and strongly graceful as it hugs the ridge of its three century old farmhouse.

(To be continued.)

ROBERT MILLS, 1781-1855

AMERICA'S FIRST NATIVE ARCHITECT

BY H. M. PIERCE GALLAGHER

III. HIS CHURCHES

WHEN MILLS was twenty years of age he prepared a paper that he termed "The Tuscan Order." However debatable the postulates of this essay, he nevertheless planned a chapel in the same year, with "four columns to rise from the area of its auditorium" which indicates that his student mind was engaged upon a new architectural alliance. This was at a period when this order was little, if at all, employed. In fact, as Mills points out, it was "spoken of disrespectfully."

The pulpit arrangement of his first attempt at church architecture could not have been a happy one. According to an old college catalogue, "it was tall and narrow and placed on a stage six feet high, so that when the speaker mounted the platform he found himself on a level with the galleries."

It is probable that Mills' first private contract in Philadelphia was for the church which is spoken of in the early annals of the city under three titles: The Circular Church, the Dr. Stoughton Church, and the Sansom Street Church. It was also referred to as an "immense structure with a seating capacity of four thousand persons." It was built with a circular auditorium and a dome, the latter feature accounted to be the first one in the country. But the church's celebrity was due in chief to its acoustics, considered "the best to be found in the Union." It was begun in 1808 and completed the latter part of 1809. No original drawings of its plans are found.

Another Philadelphia church of Mills' designing was of the Unitarian denomination and was known as the Octagon Church. It was also an auditorium in type, and the

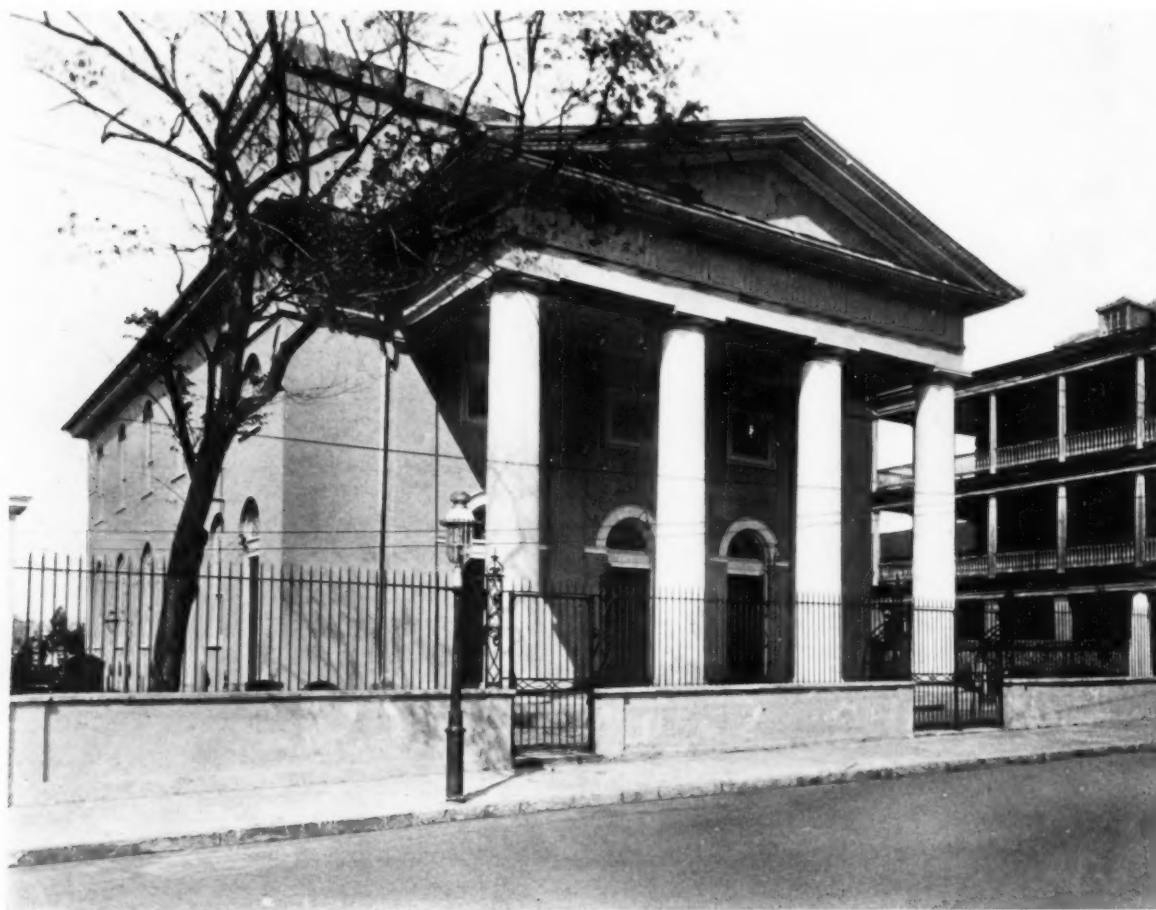
original drawing, reproduced, was probably only a study, not closely followed in the final plan. The paper is torn and all that was left to indicate the city for which it was designed, was "hia" in indistinct penciling. The supposition that it referred to Philadelphia is confirmed by a Philadelphia newspaper of February 12, 1813, which published the information that the Octagon Church was being "opened for public worship" on the following Sunday.

The next church edifice for which Mills competed was the Memorial, or Monumental Church in Richmond, Virginia, on the site of the theatre which had been burned in 1811. It was chronicled that "seventy-one of the first citizens of the state, including the governor, lost their lives in this catastrophe." So profound was the consternation and horror that "all business ceased forty-eight hours by decree of the city council which also demanded that no spectacle or public dancing assembly be permitted within four months under penalty of a fine. In addition, all citizens were "respectfully requested to wear crêpe on their arms for one month."

Mills made several plans which reflected his mental reaction to this tragedy. The one to which the committee in charge awarded the premium of five hundred dollars, was of the utmost simplicity, even severity, though it was in no sense crude.

The body of this building, which still stands, is described as "manifestly an auditorium." The special feature is the vestibule in which an urn, canopied by a protecting porch, symbolically holds the ashes of those who perished.

"The only piece of developed decoration



BAPTIST CHURCH, CHARLESTON, SOUTH CAROLINA

ROBERT MILLS, ARCHITECT

the building shows," according to Montgomery Schuyler, "is the antefixae which by their scale and their detail have a rather finical air and so far tend to contradict the general character of the architecture. The capitals of the columns are but channelings of the shafts and the architect had the odd but not unhappy thought of introducing lachrymatories instead of triglyphs to punctuate the expanse of the frieze." This individuality of conception obtains throughout the Memorial which, although unmistakably a church, is far from a conventional place of worship. The feeling which pervades it is human and tragic, rather than theistic.

It was natural, after this overwhelming

catastrophe in his early manhood, that Mills should have been impressed with the great need for fireproof buildings; or, where limited funds prohibited complete protection, for structures which would at least be fire resisting. With this thought in mind, he began the use of stone slabs for roofing, and of hydraulic cement. In Planat's *Encyclopedie d'Architecture*, reference is made to Mills' construction as "*toujours conçu à l'épreuve de feu.*"

During the seven years he spent in Baltimore, in connection with the Washington Monument, Mills was also engaged upon several churches. There are only two of which we have particular record. The Baptist Church, with its six Doric columns,



MONUMENTAL CHURCH, RICHMOND, VIRGINIA

ROBERT MILLS, ARCHITECT

was completed in 1818. It was situated on Lombard and Sharp Streets. Saint John's Episcopal Church on Liberty Street was, by the way, the birthplace of Methodist Protestantism.

Illustrations of the original drawings for both churches are given. An entry of "the Society of the Baptist Church" 1817, after stating that Robert Mills was the architect, continues that "like too many of our public edifices, this church—which is eighty feet in diameter and rough cast—is placed at the intersection of two streets. But the ground is elevated and in other respects eligible."

Work on the monument being delayed and ceasing altogether for a time, Mills removed to Charleston in 1820. The committee, aware of his family responsibilities, had been exceedingly generous. They now concurred in the return to his birth-State,

where he was to undertake development of internal improvements, under the title of State Architect and Engineer.

In all of his comings and goings it is quite clear that he underestimated the services of money, and therefore was unable to keep it. Mills the man was constitutionally "hard up," though Mills the artist never was. He quite fulfilled the ideal of the happy being to whom Robert Louis Stevenson referred when he wrote "if a man love the labor of any trade—apart from all question of success or fame—the gods have called him."

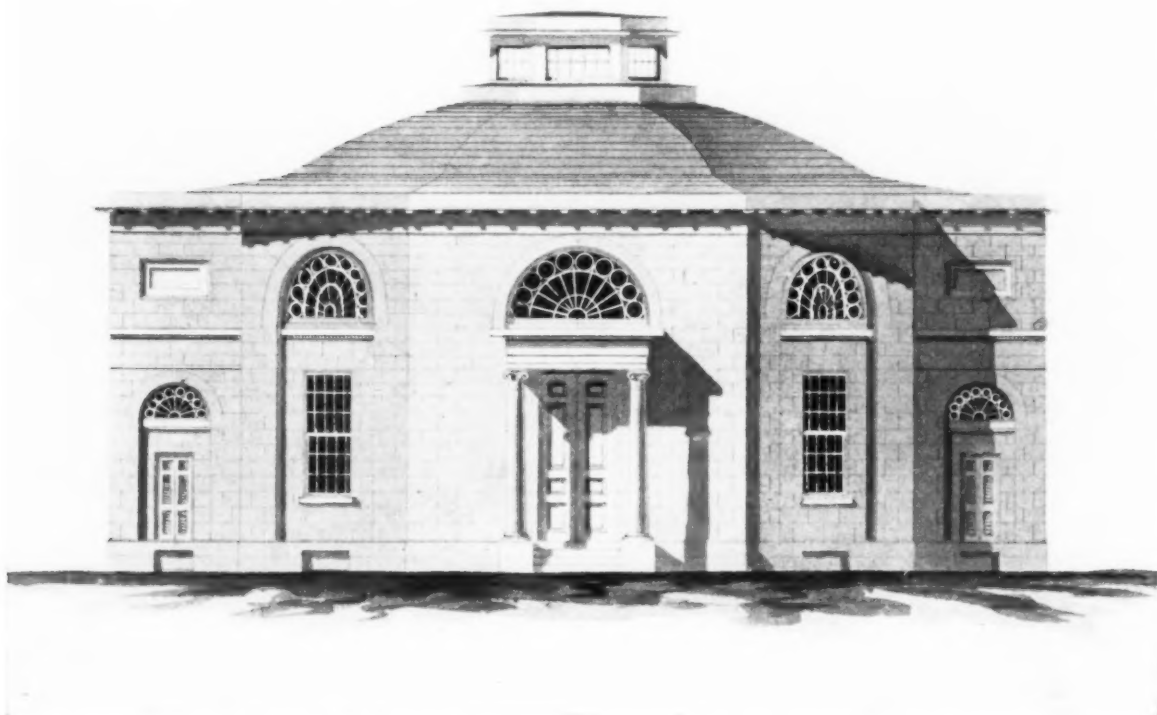
Among a variety of enterprises during this residence of nearly ten years in South Carolina, he built a number of churches. Some are only recorded, but a few are still in existence.

The Circular Church in Charleston was

his. He describes it as "a rotunda of ninety feet diameter surmounted by a dome and crowned by a lanthorn light. From that part of the rotunda which faces the west, a square projection runs out, supporting a tower; before this rises a portico of six columns, surmounted by a pediment which forms the façade of the building. A double arcade is carried all around to the circum-

supporting it being of a character suited to convey an idea of this kind. In the original design a steeple was contemplated. But a tower is already built. It is hoped that the period is not far distant when not only this, but steeples and spires will be erected, as these tend much to add to the beauty of a city."

In the *Statistics of South Carolina* he de-



SKETCH FOR UNITARIAN CHURCH, PHILADELPHIA

ROBERT MILLS, ARCHITECT

scribing walls, the openings of which constitute the windows. The modern Doric style pervades this building—which is to be regretted—particularly in reference to its great portico. Had the Greek proportions been adopted (as recommended by the architect) the effect of the whole would have been more interesting. A light gallery sweeps around the room and presents the appearance of a great settee; the columns

scribes two of the notable churches of the south, Saint Phillip's and Saint Michael's, remarking that "these two churches exhibit more of design than any of the ancient buildings here." A member of the organization of this church was authority for the statement that Mills' plans for repairing the former church remain in the possession of the vestry there, being the ones he followed in rebuilding the church after

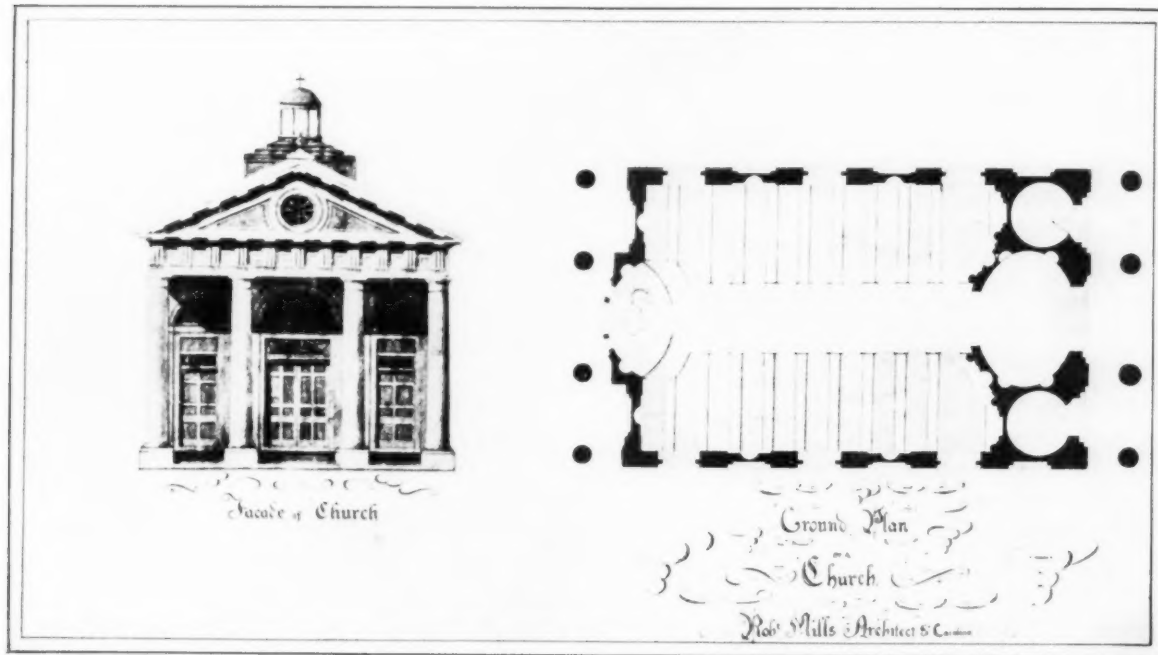
a fire which had considerably damaged it.

From the vestryman of Saint Michael's Church, he received a beautifully inscribed and very ornate letter of thanks dated March 11, 1824, for his plans for elongating this revered structure.

Mills wrote of spending much time in and about these "noble edifices," and—referred to his early manhood there—"of which he now had a more matured ap-

plainly an innovation and disturb the harmonies of the original design."

The habitual modesty with which Mills referred to his work justifies his exuberance in connection with the Baptist Church on Church Street. "It exhibits the best specimen of correct taste in architecture of the modern buildings in this city. It is purely Greek in its style, simply grand in its proportions, and beautiful in its detail." (It



FRONT ELEVATION AND FLOOR PLAN
ST. JOHN'S CHURCH, JOHN'S ISLAND, SOUTH CAROLINA
ROBERT MILLS, ARCHITECT

preciation." The grandeur of their lofty porticos and arcades was an inexhaustible source of delight and inspiration to one who had never left his own country. He writes of Saint Michael's, "whose commanding spire towers above every other object in the city, and can be observed for many miles at sea." And he laments that he is not permitted to pattern after these examples in his own ecclesiastical designing, especially in the designing of spires. However, his admiration was not blind to one flaw; namely, that "their galleries are

was his tenet that an architect must beware of his patron's enthusiasm—but never fear his own.) "The plan is of the temple form," he continues, "divided into four parts: the portico, the vestibule, the nave, and the vestry room. The length of the building is a hundred and ten feet, and the breadth sixty feet. The façade presents a portico of four massive columns of the lightest proportions of the Doric, surmounted by a pediment. Behind this portico rises an attic story squared up to the height of the roof, and crowned by a cupola or belfry. You

enter the vestibule by three doors, on each side of which the gallery stairs ascend, by three opposite doors; you pass into the aisle dividing the pews into blocks. At the extreme end of the nave of the church are the baptismal font and pulpit, lighted by a large vaulted window. Above three sides of the nave a double colonnade extends, rises up to the roof and supports the gallery." The lower columns are Doric, the upper are Ionic, each with their characteristic entablatures.

Among the churches claimed for Mills in Charleston was a Presbyterian Church, data concerning which is too unsubstantial to give.

While still in Charleston, Mills designed a church for Camden, South Carolina, the one before which was placed the monument to De Kalb. An incidental description of this little church notes that it had a "portico of four

Doric columns in front and a neat spire in the rear, containing a bell. The interior is so arranged that the floor and pews rise as they recede from the pulpit, giving every advantage to the audience both in seeing and hearing."

Mills is known to have erected churches at other points in South Carolina and also in Washington City, concerning the details of which we have no document. The only testimony of such work at the Capitol is a letter still in existence, handsomely inscribed from "Saint John's Church Vestry" thanking him for his plans for enlarging their church.

In no instance is there found a record of remuneration to the architect, accompanying any such letter,

of which several are in existence. It may be that the designs were donated as his contribution to church work, in view of his sincere religious beliefs.



SANSOM STREET CHURCH, PHILADELPHIA
ROBERT MILLS, ARCHITECT

TECHNICAL NEWS AND RESEARCH



KITCHEN OF ARIZONA-BILTMORE HOTEL

ALBERT CHASE MC ARTHUR, ARCHITECT

Featuring KITCHEN PLANNING

Previous studies of Building Types include: Swimming Pools, Storage Garages, Apartment Houses, Airports, Store Buildings.

Future issues will include: Soundproofing the Hospital, Planning High School Buildings for Better Utilization, Survey of New Building Materials.

KITCHEN PLANNING TO INSURE GREATER ECONOMY IN OPERATION

BY J. O. DAHL

It is safe to state that, of the thirty thousand quantity kitchens built the past five years, not over five thousand are well designed. These conditions could have, in many cases, been avoided if the builders had employed architects with a knowledge of kitchen practice or if the manager, chef or steward could have been consulted before plans were given final approval. The one ray of hope for the future is the tendency toward employing a manager while the building is still on paper. This coöperation between architect and manager is certain to result in greater profit for all concerned.

KITCHENS can be classified in two general groups: the commercial and the non-commercial. In the commercial group are hotels of all types and commercial restaurants. The non-commercial group is made up of hospitals, clubs, institutions, etc. The first produce food to be sold at a profit. In the second, they are essentially a service feature.

We may divide quantity kitchens into three general groups:

- 1—for restaurant service
- 2—for cafeteria service
- 3—for hospital service

In the first classification there are commercial restaurants, industrial restaurants, hotels, hospitals, schools and clubs. Group two may include the same service divisions as number one but the kitchen requirements are different in each case. Less kitchen space is required for cafeteria service than for table d'hôte and a la carte service. More space is required for strictly a la carte service than for only table d'hôte. And hospital patient service requires facilities totally unlike those for any or all other types of food service.

E. B. Horwath of the firm of Horwath and Horwath, who make a great many hotel surveys, states that the present day hotel should be designed around the kitchen. This is a logical conclusion when one learns that, in the average hotel, forty-seven per cent of the income comes from the sale of food—but in spite of this fact, this department seldom operates at a profit.

Hospitals and other non-commercial kitchens are usually less efficiently planned than those for hotels but less is heard about their expensive cost of operation because they are not on a competitive basis.

SIZE AND LOCATION

Size and location are the most important points to be considered. The size can be estimated only after a study of the food-service requirements; the number of dining rooms; the kinds of dining rooms (formal, coffee shop, cafeteria, tea room, fountain, banquet

rooms, etc.), number of people to be served each meal, and provisions for possible expansion of business. In hotels and restaurants, kitchens usually occupy about 25 per cent as much space as that allotted to the dining room. Following are typical examples of floor space required:

HOTEL

Serving	Floor space required
100 meals per day	450—600 square feet
200 meals per day	700—900 square feet
500 meals per day	1,000—1,500 square feet
1,000 meals per day	2,000—2,500 square feet
3,000 meals per day	3,000—4,000 square feet
6,000 meals per day	7,000—8,000 square feet

HOSPITAL

100 meals per day	500—600 square feet
250 meals per day	650—750 square feet
500 meals per day	750—1,000 square feet
1,000 meals per day	1,500—2,500 square feet

INDUSTRIAL CAFETERIA

(noon meal only)

500 persons per meal	1,000—1,500 square feet
1,000 persons per meal	2,500—3,000 square feet

LUNCH COUNTER

300 persons per meal	300—500 square feet
750 persons per meal	900—1,100 square feet

CAFETERIA

1,600 persons per meal	1,500 square feet
------------------------	-------------------

TEA ROOM

150 meals per day	150 square feet
225 meals per day	450 square feet
575 meals per day	1,100 square feet
1,200 meals per day	1,800 square feet

Lunch rooms, cafeterias, and coffee shops do not have kitchens as large as those in formal restaurants and hotels. If some food is prepared in the dining room, or if waiters do not need to go into the kitchen much less space is needed.

Much room-service business requires additional space, especially at the point where tables are to be

set up. The tendency is decidedly away from distant service kitchens. Modern methods make it possible to keep food warm and transport it quickly.

It is advisable to have departments housed in separate rooms. By this I mean the pantry, bakery, butcher shop, dish-washing department, etc. The upper part of partitions may be made of heavy mesh wire so that each room is well ventilated. Much time can be saved if washrooms and toilets are on the kitchen level.

It is obvious that quantity cooking requires less space than for individual preparation.

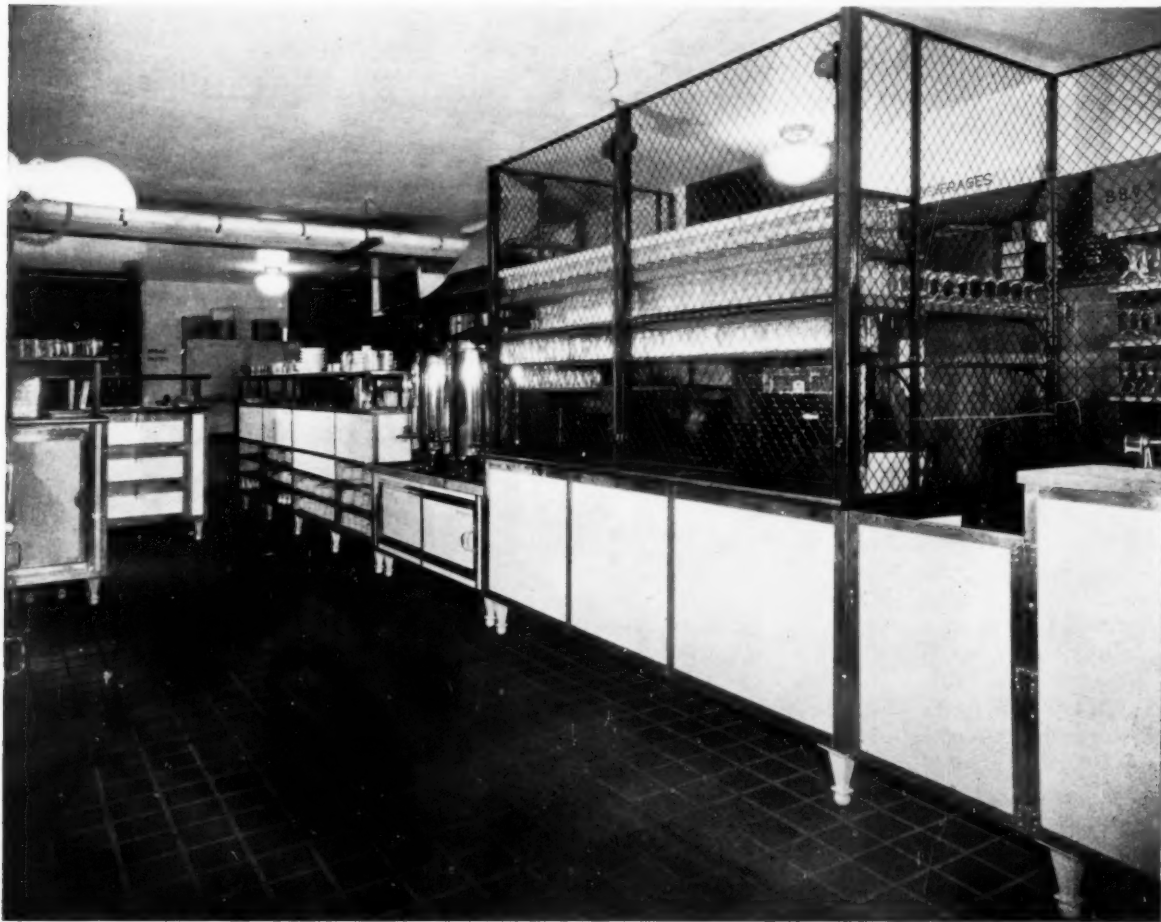
Before the kitchen is planned it is necessary to decide whether or not a bakery or butcher shop is to be operated. It is usually economical to have both departments in kitchens handling three hundred or more meals a day. A bakery is an economy for all types and sizes of institutions.

The best chefs and stewards agree that the kitchen

should be on the same floor with the dining room. They also agree that the two should be together. Each additional step, made necessary by inefficient layout, costs money and slows up service.

If possible, the storeroom should be on the same floor as the kitchen, and located close to it. If there is not space enough for a larger storeroom, then by all means make provisions for the storage, in the kitchen, of supplies used most generally. This saves time during rush hours when it is most valuable.

An analysis, made by a steward of a California hotel, showed that each waiter made an average of 15,000 steps during the day, on the way to and from the kitchen. If the kitchen and dining room had been designed properly, each waiter could have saved 2,500 steps. The total saving in this dining room would have been enough to get along with two waiters less—a direct saving of at least \$1,800 a year. This is but one example of the day-in-and-day-out



BEVERAGE DIVISION OF KITCHEN
BISMARCK HOTEL, CHICAGO
RAPP AND RAPP, ARCHITECTS

expense of poorly planned kitchens. Another example is that of having a square or oblong kitchen, with a dining room of the reverse size. Plans should always be made so that the distance from the farthest part of the dining room can be kept at a minimum. An oblong kitchen and an oblong dining room, placed end to end, is usually the most inefficient of all layouts.

CONSTRUCTION

Kitchens should be fireproof. If possible, they should have outside exposure. Ceilings should never be less than twelve feet, and preferably eighteen feet, in height.

All corners in the kitchen should be rounded, so that there is no place for vermin or dirt. The floor should incline slightly to floor drains (from three to five inches in size) that are equipped with traps for easy drain. With such construction, the floors can be flooded with boiling water and flushed with a hose from convenient outlets. All wall corners where trucking is done should be protected with heavy iron plates, to extend at least three inches on each side of the corner. It is impossible to keep truckers from bumping into corner walls. Without iron protection, these will need constant repairing.

WALLS

Enameled brick, white tile, and enameled walls lead in popularity. Many kitchens are tiled to the ceiling, but most of them have it halfway to the ceiling. The balance is a white enameled surface.

Color is beginning to find its way into kitchens. There is every reason why kitchens should be more colorful. At its best, kitchen work is difficult and trying. Colors, if properly chosen, are soothing and stimulating.

Other valuable features regarding kitchen construction are:

Have corridor ceilings high enough so that tall waiters can walk with trays held high over their heads.

Window frames and sash should be of steel and of the factory type that can be swung open for easy cleaning.

Doors and frames should be of metal.

Door knobs should be high enough so that doors can be opened easily by employees with their arms full. Do not use two-way doors unless these have glass windows so that traffic can be seen from both sides. Where double doors are used, each should be painted, in large letters, with the word "In" or "Out." Where many foreigners are employed it may be necessary to use such signs in several languages.

Sound-proof construction should be used between kitchens and dining rooms. In some cases two sets of doors will keep out the noise. Then again, it can

be muffled by the use of deadening materials on the ceilings.

Brass pipe should be used for all hot and cold water lines.

EFFICIENCY

An efficient kitchen is one in which each employee takes the fewest possible steps and where everything is in logical order. The soiled-dish table should be near the entrance and the clean-dish service counter, pantry, and urns in the semicircle that leads back into the dining room. There should be no crossing of routes. It should be possible for waiters to pick up their orders quickly, conveniently, and without retracing their steps, and to reach the service counter, pantry, or urns without getting in the way of other waiters. This is possible when each service station is placed properly. Associated divisions in the kitchen should be side by side so as to save the kitchen workers time.

Doors to the dining room and outside doors through which merchandise is delivered to the kitchen or storeroom, must be placed so that the least number of steps is necessary to reach the service tables or the storeroom. The same is true of stairs which lead to the basement. Delivery of food from the basement to the kitchen should not interfere with normal traffic in the dining room.

If the storeroom is in the basement it must be located conveniently to the doors through which merchandise is delivered, and also to the stairs leading to the kitchen. If the storeroom is located on the same floor as the kitchen, it is necessary to see that traffic to and from it does not interfere with the waiters.

Large institutions can use overhead conveyors and carriers to good advantage.

The storeroom should be a cool, well-ventilated room. If possible, use concrete and steel in storerooms. Another important feature in connection with the planning of a storeroom is that of having the scales located conveniently for the weighing of all the merchandise received from merchants and issued to the kitchen.

PANTRY

The pantry should be as close as possible to the dining room entrance. There should be space enough in it for storage, refrigerators, work tables, sinks, urns, and such machines and utensils as are necessary for the production of whatever dishes you expect to serve from it. Urns may be in or outside the pantry, depending on whether or not waiters are to draw their own beverages. From this it is obvious that the architect must know how much food is going to be served from the pantry before he can determine its most efficient size.

DISH-WASHING AND SILVER-WASHING DEPARTMENTS

The Dish-washing and Silver-washing Departments must be compact without being crowded. A crowded condition makes for greater breakage and more noise. Both of these are expensive in cash and good will. The sooner bus boys or waiters can deposit soiled dishes the less it costs to handle them. Conveying and subveying machinery saves money. Noise, steam, and odors from this department must be kept out of the dining room and, if possible, out of the kitchen also. For these reasons many authorities agree that the dish-washing department should be housed in a special room with adequate ventilation and sound-proof walls and ceilings.

The interior layout of this department should be such that dishes, silver, and glasses can be cleaned with the fewest possible motions. It is also necessary to provide sufficient space for their storage after they have been cleaned.

The pot-washing department must be convenient to the ranges—the source of soiled pots.

Clean-dish storage should be close to the dish-washer, cooks' station, and waiters' supply.

CHEF'S OFFICE

The chef must have an office. It should be located so that he can view the entire kitchen. It need not be large, but there should be room enough for a steel desk, two chairs, and a steel file. If possible, provide space enough for a bookcase and a rack in which he can keep the latest literature covering his specific duties.

WASHROOM

Every kitchen should have a washroom on the same floor, with additional facilities for toilets, shower baths, and lockers in the basement.

EMPLOYEES' DINING ROOMS

Employees' dining rooms must be planned for comfort and sanitation. In some hotels there are separate dining rooms for cooks, maids, kitchen employees, office employees, and officers. In hospitals there are special rooms for kitchen employees, nurses, doctors, etc. The architect must know the policy before planning dining rooms for employees.



SPECIALTY KITCHEN

BAKERY

Sixty-nine per cent of the hotels over 100 rooms in size do all baking in their own bakery. About forty per cent of the worth-while restaurants, most hospitals, and over seventy-five per cent of the public institutions do likewise. Therefore, the bakery is an important part of every kitchen.

It should be located close to the pantry and not too far from the storeroom. If it is impossible to have it on the same floor as the kitchen, then by all means have it directly beneath the pantry, so that dumb-waiter service connects these two departments. Such an arrangement will save time and money.

BUTCHER SHOP

The most important point in planning the butcher shop is to allow space enough for refrigerators and tables. If meat is to be bought by the carcass and aged on the premises, much space will be needed in the ice boxes. By having surplus refrigerators, it often pays to buy in advance of immediate requirements.

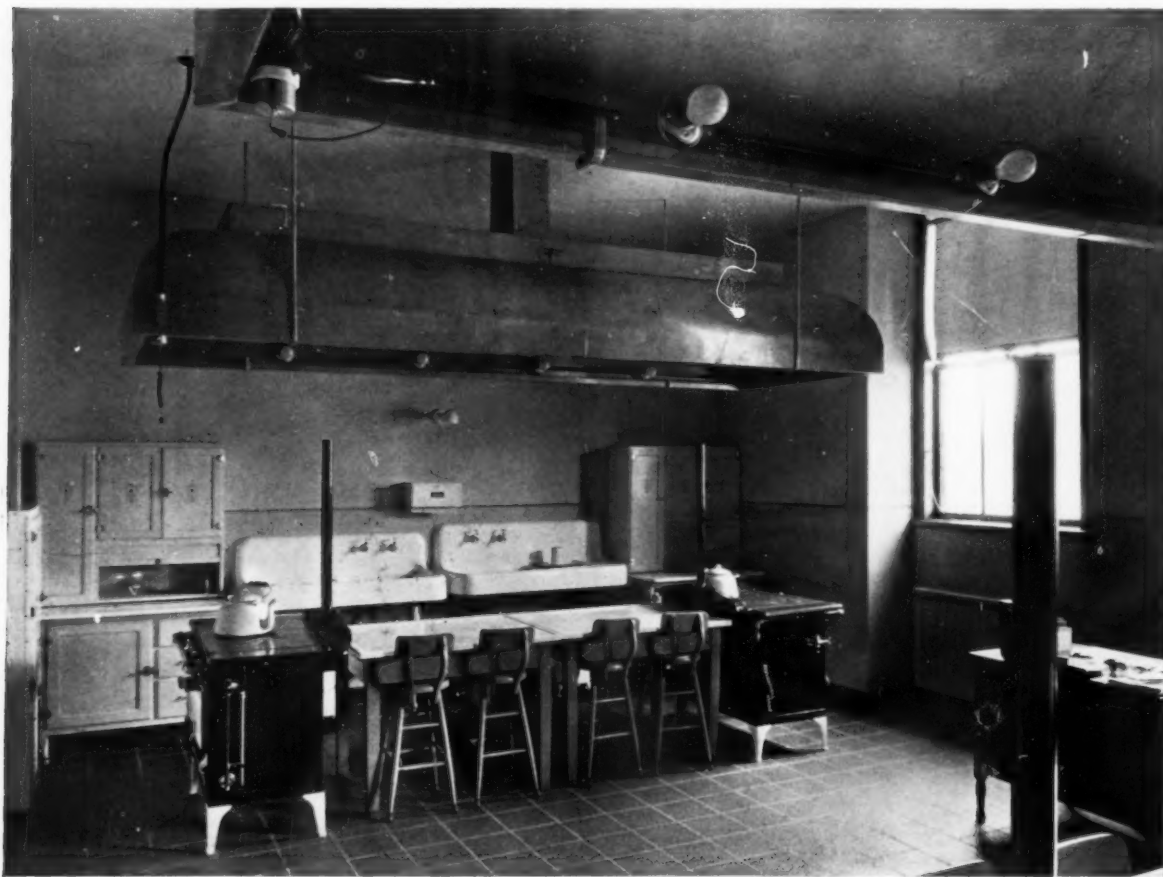
The butcher shop should be close to the receiving room, the *gardemanger*, and the main kitchen. It

should have all the sanitary construction features found in the kitchen. Like the bakery, it should be built in a separate room with doors wide enough for large trucks.

STOREROOM LOCATION

The storeroom should be located close to the kitchen—on the same floor, if possible. And it must be close to the receiving door. At least two hotels within a mile of my office employ two men to do nothing but truck merchandise from the receiving room to the storeroom, and then to the distant kitchen. With proper planning, one man could have done the work. An almost identical condition exists in one of the newer large hospitals in Manhattan. These errors in planning cost the management thousands of dollars a year.

Doors to the receiving room and corridors leading to the storeroom should be wide enough for two trucks to pass. Wherever the goods are to be weighed there should be room to sort and inspect at leisure. There must be room for large tables, a platform, counter, and hanging scale, and room for trucks to load easily. If the storeroom is on a floor lower than



DOMESTIC SCIENCE KITCHEN
CHRISTODORA HOUSE, NEW YORK
HENRY C. PELTON, ARCHITECT

the street, it will be necessary to have large freight elevators, chutes, or a conveyor. These must bring the merchandise into the most convenient part of the receiving room. If a conveyor system is used, the goods can be brought directly into the storeroom, regardless of whether or not the storeroom is on the same floor.

The room should have a ceiling of at least twelve feet, be well ventilated and properly lighted. Enamelled walls and ceilings and concrete or heavy tile floors are advisable. The flooring must stand up under heavy trucking. If concrete is used, it should be painted with materials that prevent crumbling and dusting.

All corners should be rounded, as in the kitchen, and a large drain in the center of the room, away from all shelving, is essential. The storeroom must be kept free from all odor, vermin, or rodents. Frequent flushing makes this possible. A good system of ventilation keeps the room fresh, dry, and free from odors.

The ideal storeroom for large institutions has departments for china, silver, cleaning supplies and paper goods, beverages, meats, perishables, and canned goods.

Fresh meats, fish, vegetables, fruits, berries, and dairy products must be stored in refrigerators of varying temperatures. Cleaning supplies can be kept in any dry part of the storeroom. Canned goods should not be kept in refrigerators because there is a danger of rust. Canned berries that are acidulous,

and such canned products as olives and pickles should be stored in a temperature of about 38 degrees, otherwise they are apt to ferment and burst their containers. All this influences the layout of the storeroom. Each department must be made to fit into the perfect plan. Other points to be considered in making a perfect plan are:

Foods bought and issued most frequently should be stored in a department of the storeroom that is closest to the kitchen and receiving room. Not long ago I visited a storeroom in which the fresh-meat room was at the greatest distance from the point of receipt and preparation. The china and silver department was within a few feet of the steward's office. If the refrigerators had been built where the china and silver room was located, there would be a saving of sixty feet of trucking or walking every time the refrigerators are used. The steward estimated that their loss amounts each year to the time it takes a man to walk 250 miles. This is an indication of how a little mistake takes a big annual toll in operating costs.

These are the high lights in so far as kitchen planning is concerned. But they should not be accepted as standard. They are but a basis on which to study each individual institution under consideration. And this preliminary research can be made at the lowest possible cost and with the greatest guarantees to the architect's reputation if he insists upon a complete outline of the catering facilities desired. Then, as an additional check, the prospective manager or lessee should be permitted to check the final plans.

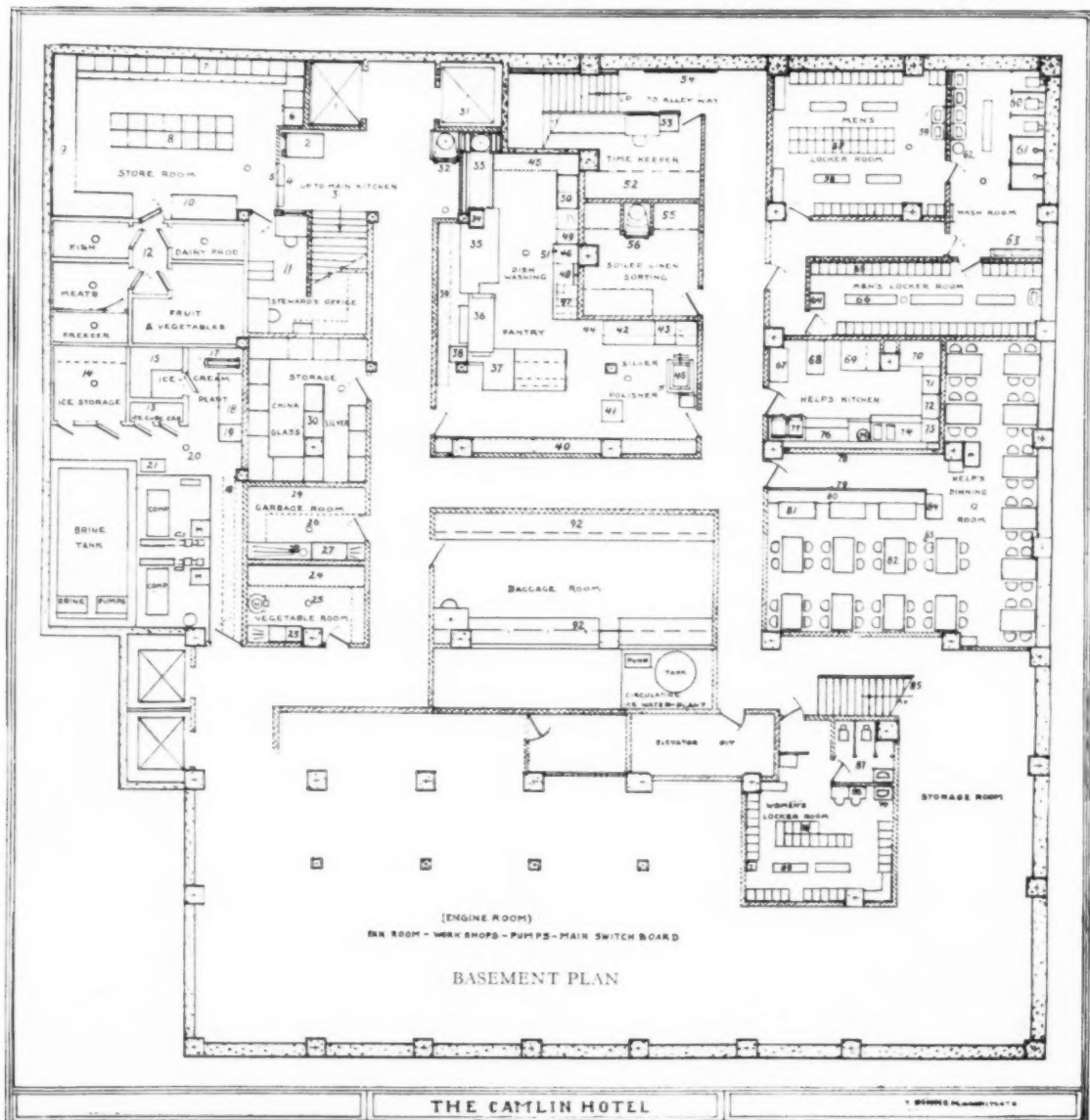
LAYOUT FOR TYPICAL KITCHENS

KEY TO PLANS

KEY TO BASEMENT PLAN

1. Freight Elevator for Food Supplies and Baggage
2. Counter-sunk scale
3. Stairway to Kitchen
4. Store Room Counter
5. Double Door
6. Bread Box of Sheet Metal
7. Grocery Shelves with Metal Bins
8. Metal Shelf for Bulk Goods, Sacks, etc.
9. Grocery Shelves, 4 ft. off Floor, Space for Bulk Storage under
10. Bulk Storage Shelves
11. Steward's Office; two desks, steel files, Metal Shelving
12. Refrigerator for Food Supplies; Meat, Fish, Vegetables, Fruit and Dairy Products
13. Ice Cube Cabinet
14. Ice Storage Room; Chilled Blocks
15. Ice Cream Hardening Room; Fancy Ice Cream Storage
16. Condenser, Overhead
17. Motor-driven Ice Cream Freezer, Brine System
18. Work Table with Marble top, for Form Work; Metal Shelf under
19. Sink with Drain-Board
20. Floor Drain
21. Motor-driven Ice Shaver (from present kitchen)
22. Potato Peeler
23. Sink with Drain-Board
24. Metal Shelving with Bins for Sacked Vegetables
25. Floor Drain
26. Floor Drain
27. Sink with Drain-Board and Steam-Hose for Sterilization
28. Baking Board with Slope
29. Shelving for Garbage Cans
30. Storage Shelves for Banquet and Reserve Glass, Silver, and China-Ware
31. Service Elevator to Kitchen and Dining Rooms

32. Linen Chute, Connecting Basement with Kitchen Floor and Dining Rooms
33. Subveyor with Belt-take-off, collecting soiled dishes from all Food Service Floors
34. Soap Water Pan with Drain and Basket for Silver Flat Ware
35. Scraping Table of Monel Metal with Pipe Legs and Sheet Metal Shelf under for empty Trays
36. Autosan Dishwashing Machine, Conveyor Type
37. Clean Dish Receiving Table of Monel Metal with Shelves over and under
38. Soaking Tank with Drain.
39. Shelf for Towels, Soap, Tools
40. Locker for Scrubbing Materials and Shelves for Silver to be polished or repaired
41. Grease Trap under Floor, connected with Dishwashing Machine
42. Silver Man's Work Table of Monel Metal
43. Sink with Drain
44. Metal Shelf over
45. Tahara Silver Burnishing Machine
46. Basket Table of Monel Metal with Shelf under
47. Oak Wood Compartment Box for Clean Silver Flat Ware
48. Silver Drying Table with oblong Pans for Cleanser
49. Fancy Glass Ware Table
50. Sink with Drain Board
51. Metal Shelf over
52. Time Keeper's Office

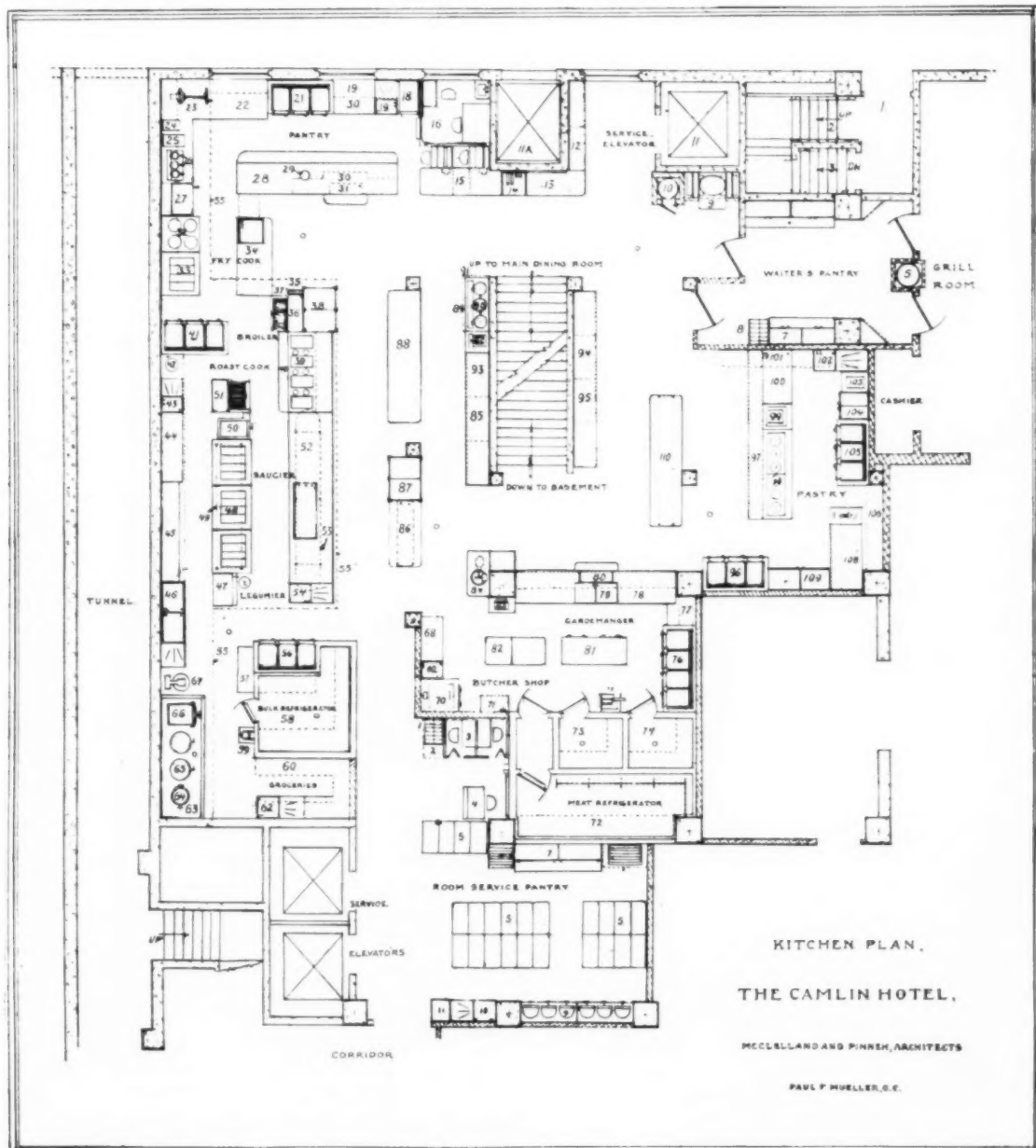


53. Employees' Time Clock
54. Racks for Time Cards
55. Wood Shelving for Soiled Linen, Sorted and Packed in Canvas
56. Outlet of Linen Chute for Soiled Laundry from Guest Rooms
57. Individual Steel Lockers
58. Wooden Benches
59. Lavatories
60. Shower Baths
61. Waste Can
62. Urinals
63. Large Locker for Cleaning Materials
64. Extra Locker
65. Steel Lockers
66. Wooden Benches
67. Kitchen Cabinet with Bins
68. Work Table, Maple Top, Monel Metal Shelf over and under
69. Gas Cooking Range with Extension to the Right
70. Work Table, Maple Top, Monel Metal Shelf over and under
71. Sink with Small Drain Board
72. Combination Toaster and Griddle (gas)
73. Shelving for Dishes
74. Steam Table from Present Kitchen
75. Coffee Urn from Present Kitchen
76. Serving Counter of Monel Metal with short spaced shelving for Bread and Butter, Salads and Desserts
77. Two-Compartment Refrigerator
78. Arch through Wall, Base 34 inch from Floor w. Cafeteria Sl.
79. Side Wall of Wood, 6 ft. High
80. Full Length Bench of non-splintering Wood
81. Tables for Two
82. Tables for Four
83. Substantial Kitchen Chairs
84. Tray for Soiled Dishes
85. Stairway to Stores and Alley Way Entrance
86. Dressing Tables
87. Toilets
88. Steel Lockers
89. Wooden Benches
90. Lavatories
91. Porter's Desk
92. Shelving for Baggage
7. Cabinet for Clean Linen, Condiments, Bread and Rolls
8. Compartment Box for Table Silver
9. Subveyor for Soiled Dishes
10. Dining Room Linen Chute
11. Service Elevator to Basement and to Dining Room Pantries
12. Service Table with Shelf
13. Freight Elevator for Baggage Delivery and Food Supplies
14. Announcer's Desk with Pneumatic Tubes System to Dining Room and Room Service
15. Food Checker's Desk, Two High Chairs and Two Cash Registers
16. Chef's Office: Flat Top Desk with Drawers for Files, Lavatory, Extra Chair, Swivel Chair and Filing Case
17. Refrigerator for Preserves, Canned Goods
18. Sink with Drain Board
19. Dry Storage Cabinet for Cereals
20. Maple Top Work Table, Shelf under
21. Refrigerator for Fruits and Salads
22. Maple Top Work Table with Shelf over and under
23. U. S. Bread Slicing Machine
24. Strite Automatic Toaster
25. Bread Cabinet
26. Electric Waffle Iron
27. Garland Combination Griddle and Salamander with Metal Shelf in Rear
28. Pantry Service Counter, Center Part Refrigerated, Monel Metal Top, White Enamel, Monel Trim
29. Electric Citrus Fruit Press
30. Monel Metal Shelf over
31. Sink with Drain; for Shaved Ice
32. Short Order Gas Burner (Lang)
33. Edison Electric Heavy Duty Range
34. Steam Table with Monel Top and Open Copper-lined Bain Mari
35. Two Two-Basket Steam-Heated Egg Boilers
36. Edison Electric Broiler
37. Monel Shelves
38. Steam-Heated Plate Warmer, White Enamel Monel Tr.
39. Roast Cook's Steam Table with Canopies, Gravy Pots, Service Shelf, Front with White enameled Sliding Doors and Rear with Open Shelf
40. Carving Board of Maple Wood
41. Refrigerator for Fry Cook, Broiler and Roast Cook
42. Rubbish Can
43. Sink with Drain Board
44. Monel Top Work Table with Shelf under
45. Storage Shelf for Pots and Pans
46. Potwasher's Sinks and Drain Board
47. Garland Griddle and Salamander (Gas)

KEY TO MAIN KITCHEN PLAN

1. Door to Alley; Employees' Entrance
2. Stairway to Basement
3. Stairway to Floors above
4. Cupboard, Dish and Glass Storage
5. Linen Chute from Room Floors
6. Ice Water Faucet with Drain

48. Three Edison Heavy Duty Electric Ranges, 22 KW, AC or DC, 110 or 220 W.
49. Grilled Shelf over Ranges Supported by Pipe Legs
50. Three-Deck Electric Oven, (Edison 426N3-10 KW)
51. Charcoal Broiler
52. Monel Top Steam Table with Open Copper-lined Bain Mari for Second and Vegetable Cooks
53. Suspended Pot Rack
54. Sink with Drain Board
55. Hood (Apron) Over Entire Hot Food Section
56. Short Order Refrigerator for Second and Vegetable Cooks
57. Monel Top Work Table with Shelf under
58. Bulk Refrigerator for Entire Hot Food Section
59. Refricoil
60. Grocery Shelves of Monel
61. Maple Top Work Table
62. Sink and Drain Table
63. Monel Metal Pan
64. 20 gal. Tilting Steam Kettle
65. Two Stationary 50 gal. Steam Kettles of Nickel



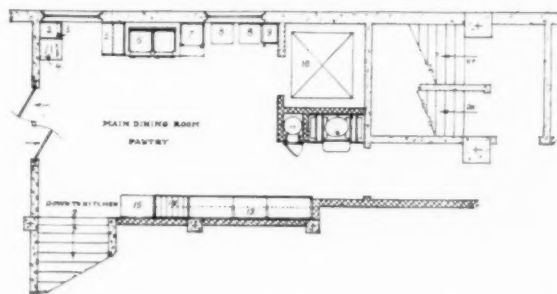
66. Three Compartment Steam Cooker (Lang)
67. Hobart Mixer (B280 Model)
68. Maple Top Work Table as Fish Block, with Shelf under
69. Sink
70. Fish Box with Drawers and Trap Door
71. Side Table with Gas Torch
72. Bulk Meat Refrigerator
73. Poultry and Game Refrigerator
74. Gardemanger's Bulk Refrigerator
75. U. S. Motor-Driven Meat Slicer
76. Refrigerator for Sea Foods, Cold Meats, Cheese, etc.
77. Work Table of Maple with Monel Shelves over and under
78. Gardemanger Service Counter, Monel Shelf over and under
79. Double Sink
80. Sink with Drain, for Shaved Ice
81. Breeding Table
82. Butcher's Meat Block and Maple Top Work Table
83. Meat Scale
84. Motor-driven Food Chopper
85. Monel Metal Shelves for Silver Service
86. Service Loading Table of Monel with Shelves over and under
87. Plate Heater, Service Side with Heavy Flannel Curtain
88. Service Loading Table, Maple Top, Wooden Benches suspended under
89. Urn Stand with Sliding Doors
90. Battery of Coffee Urns 10 gal. cap.
91. Hood Over Coffee Urns
92. Cream Dispenser with Shelves for Creamers
93. Open Shelving for Coffee and Tea Pots
94. Chafing Dish Storage
95. Porcelain, Glass, and Silver-Ware Storage
96. Beverage Refrigerator
97. Pastry Service Counter with Monel Top and Open Shelving in Front
98. Ice Cream Cabinet
99. Fancy Ice Cream Cabinet
100. Maple Top Work Table with Monel Shelf under
101. Electric Drink Mixer.
102. Sink with Drain Board
103. Pudding Heater (Steam)
104. Metal Case for Pies and Puff Paste Goods
105. Pastry Refrigerator
106. Monel Shelf over
107. Electric Top Heating Plates
108. Decorating Table, with Shelf over
109. Cabinet with Glass Doors for Storing Sugar Work
110. Serving Table with Monel Top, Shelf over

ROOM SERVICE PANTRY

1. Compartment Tray for Table Silver
2. Tray Bench
3. Telephone Booths
4. Desk and Blackboard
5. Portable Service Tables
6. Folded Tray Stands
7. Cabinet for Clean Table Linen, Condiments, Bread and Rolls
8. Service Table Storage
9. Shelf for Electric Food Carriers
10. Sink with Drain Board
11. Ice and Butter Cabinet

KEY TO MAIN DINING ROOM PANTRY

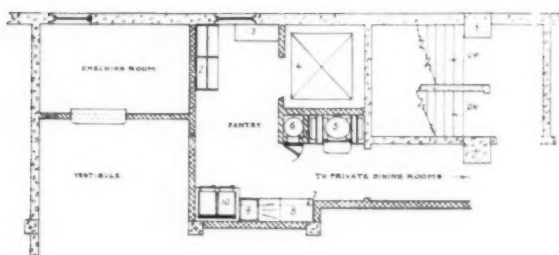
1. Entrance to Main Dining Room
2. Sink of Monel Metal
3. Shelf over for Finger Bowls
4. Waste Can under Sink
5. Cabinet for Water Pitchers and Goblets



6. Two Compartment Refrigerator for Ice, Butter; Flowers
7. Bread and Roll Cabinet
8. Tray Stands
9. Locker for Cleaning Materials
10. Service Elevator
11. Linen Chute
12. Subveyor for Soiled Dishes
13. Cabinet for Table Linen, Under-liners, Condiments
14. Compartment Tray for Silver Flat Ware
15. Work Table of Monel Metal

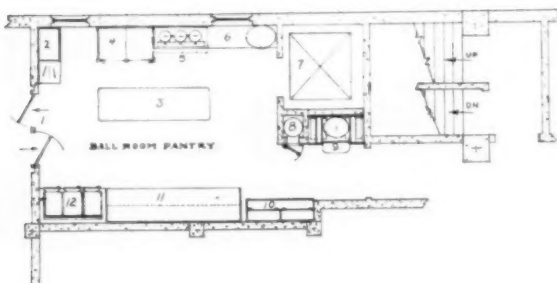
KEY TO PRIVATE DINING ROOM PANTRY

1. Vestibule and Checking Room
2. Cabinet for Clean Table Linen, Condiments
3. Tray Table
4. Service Elevator
5. Subveyor for Soiled Dishes
6. Chute for Soiled Linen
7. Monel Metal Shelf over
8. Work Table, Monel Metal Top
9. Sink with Drain Board
10. Two Compartment Refrigerators for Cocktails, Salads, etc.



KEY TO BALL ROOM PANTRY

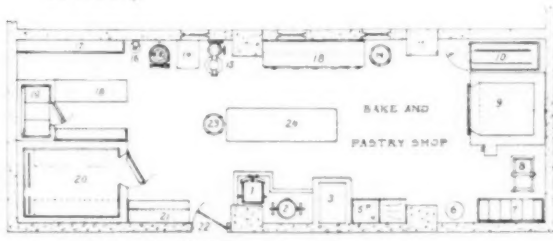
1. Entrance to Ball Room
2. Sink of Monel Metal w. Drain Board
3. Banquet Serving Table with Maple Wood Top and Shelf under
4. Plate Heater, lower part; Food Heater, upper part



5. Battery of Coffee Urns, eight gal. capacity with Urn Stand and Hood of White Enamel and Nickel Trim
6. Work Table and Tray Bench
7. Service Elevator
8. Chute for Soiled Linen
9. Subveyor for Soiled Dishes
10. Cabinet for Clean Table Linen, Condiments
11. Serving Table for Pantry and Pastry Goods, Maple Wood Top with Monel Metal Shelves over and under
12. Three Compartment Refrigerator for Cocktails, Salads, Butter and Ice

KEY TO BAKE AND PASTRY SHOP

1. One Section Steam Pressure Cooker (Lang)
2. Steam Jacketed Copper Kettle, Tilting Type, 20 gal. Capacity
3. Duct, as is
4. Sink of Monel Metal with Drain Board, as is
5. Shelf and Rack for Pots and Pans
6. Waste Can
7. Bread Rack with Wheel Swivel Casters and Removable Shelves
8. Portable Pan Rack, with Swivel Casters
9. Edison Portable Bake Oven; Two Decks (N53 or N111)



10. Proof Box of Galvanized Sheet Metal, with Angle Track
11. Bowl Rack with Steel Casters
12. Work Table with Ash Top, Monel Metal Shelf, Four Bins, Three Drawers, of Galvanized Sheet Metal
13. Hobart Mixer, B280 Model, 80 qt. and 30 qt. Bowl
14. Bench of Sheet Metal with Pipe Legs
15. Vulcan Candy Furnace (Gas)
16. Reco Machine, as is
17. Switchboard
18. Decorating Table, as is
19. Cooler for Petit Fours, Sponge Cake, Crushed Fruit, as is
20. Bulk Refrigerator for Pastes, Dough, Pie Fruit, etc., as is
21. Cabinet for Spices, Essences, Colors, Cutters, as is
22. Entrance from Corridor
23. Bowl Rack with Wheel Casters
24. Work Table with Marble Top, Pipe Legs, and Monel Shelf under

THE CAMLIN HOTEL, Seattle, Washington,
was designed by
McClelland and PinneH, Architects;
PAUL F. MUELLER was Consulting Chef.

NEW YORK BUILDING CONGRESS STANDARD SPECIFICATIONS

WILLIAM ARTHUR PAYNE, CHAIRMAN, STANDARDS COMMITTEE

THE New York Building Congress, as one of its activities, has prepared, through its Committee on Standards, a specification for the construction of buildings, presented in a form that can be used by architects as contract documents.

These specifications carry out the original idea of the American Institute of Architects, when it prepared the General Conditions, so generally used by the profession. The General Conditions were put out with the authority of the Institute and are, therefore, used by the architects as articles of the contract. The Standard Specifications of the Congress are put out with authority and, likewise, can be used as contract documents.

The preparation of specifications is, at best, a tedious operation. The specification writer has a great mass of material come to his desk, which, if properly digested, would take considerable of his time. Specifications frequently have to be gotten out in a rush and too often result in the copying from the specifications for previous buildings under which work has been successfully finished. The results, however, are not uniformly successful, are unsatisfactory to the architect, and an uncertain guide to the contractor at the time of bidding. The interpretation of ambiguous wording leads to unfortunate disputes as the work progresses. There are many clauses in all specifications which are applicable to any building, and their constant recopying adds an unnecessary expense to the cost of the documents.

To overcome these difficulties, many serious attempts have been made by individuals and by trade associations to formulate guides to specification writers. These have taken many forms. Several checking lists are available with excellently worded clauses, ready-made for inclusion by the architect in his specifications. Complete specifications in several trades have been sent broadcast by such associations as: American Institute of Steel Construction, the Concrete Steel Institute, the National Terra Cotta Society, and many others. Sweet's Catalogue, with its voluminous storehouse of facts, is generally available. All of these documents, however, are of a suggestive or permissive nature. They often conflict in the statement of facts. The specification writer has not the time to digest and weigh their merits. Likewise, the descriptions of a certain process, in similar specifications, conflict in the wording and are confusing to the bidders.

The Congress specifications are prepared to cover

these difficulties. They present, in a printed form, a complete specification for the methods and materials for work and are written for the Metropolitan area.

After considerable discussion and trial by at least two well-known offices, the form of presentation is a "Part B," containing clauses in each trade covered, and applicable to any building. These clauses describe only the materials and the methods of their use. They present a checking list to the specification writer, who must clearly state, in a "Part A" which he will prepare, the material he desires and where it shall be used. He has the greatest latitude to express his own individuality in the selection of material and the variation of the methods described. What is offered, in a printed form, is a good solution which, if used, will produce good work. When once read and understood by the profession and by the contractors and material men, only the variations from the standard, as called for under "Part A," which would be typewritten or blue-printed and bound in with the printed "Part B" Standard, will be necessary to be considered by the bidder.

The writing of "Part A" must specifically call for the inclusion of such clauses of the Standard "Part B," as the Architect desires to use for the particular building. Any clauses not specifically mentioned in "Part A," which he writes, will not be part of the contract. The fact that the standard clauses are printed and will stand the same in all architects' specifications, should lead to the preparation of closer estimates, and should obviate many of the disputes which arise from variations of wording.

Such a specification is useless without the knowledge of the proper authority underlaying their preparation. The New York Building Congress is a proper agency to institute such a work, it being made up of all of the elements of the building industry—Finance, Design, Engineering, Contractors, Materials and Labor. The specifications have been prepared in the first instance by an architect—Mr. H. R. Dowsell of the office of Messrs. Shreve & Lamb—to insure their presentation in a form to satisfy the profession.

After being thoroughly criticized and amended, they have been presented, for criticism or approval, to the trade association of the industry affected, or, where none exists, to two or more recognized authorities in the trade. It is interesting to note that the discussions in the trade associations have raised important points which needed clarifying in the in-

dustry. In several trades, approval of the final form has been had only after many conferences as to the proper wording to secure the desired clarity of expression.

The trade association, having had its innings, the specifications were presented to a committee of specification writers from four representative architects' offices, appointed by the President of the New York Chapter of the A. I. A. This committee deliberated some months and finally presented its report to the chapter, which was adopted at its January meeting of this year. It is quoted as follows:

"The committee appointed to examine the standard specifications suggested by the New York Building Congress, reports as follows:

"The various sections of the Building Congress Standard Specifications were distributed among the several members of the committee for study. Each committeeman has found the sections of the specifications examined by him to have been studiously and carefully drawn. In the opinion of the committee, Mr. H. R. Dowswell, and the gentlemen who have had a part with him in the preparation of these specifications, have truly performed a commendable service to the profession and to the building industry.

"As the committee understands the function of the American Institute of Architects, the New York Chapter, as a chapter, is without authority to place its approval on these forms of specifications, that being a function of the national body. Moreover, the committee does not feel that it can say to the chapter that the form in which the specifications are drawn is completely adaptable to the conduct of every architect's office. The complete adaptability of the form of these specifications may, the committee feels, be left to the judgment of each individual architect.

"However, the committee heartily commends the specifications to the members of the chapter, and it recommends that every member of the chapter obtain copies of these specifications; they will find them in most part, if not entirely, of great assistance in drawing specifications. The phraseology of the specifications is clear, direct and understandable, and their use should result in better bidding on, and better execution of, the architect's design. These specifications mark an advance in the difficult task of clear, direct specification writing.

Truly yours,

John M. Montfort of Buchman & Kahn
Frank W. Reynolds of Thomas Murray, Inc.
Bevan Jones of Voorhees, Gmelin & Walker
John A. Wetzel of John Russell Pope."

The authority for presentation is, therefore, complete. The Standard Specifications are issued by the New York Building Congress. They are approved by the trade associations or by recognized authori-

ties in each industry. They are recommended for use by the New York Chapter of the American Institute of Architects.

The examination and approval by the trade associations further insures that disputed questions of labor will be properly provided for and will avoid the sometimes unfortunate inclusion, by the architect in his specification, of items of work which cannot be properly handled by that trade. Such practice has been a cause of serious disputes.

Wherever the Standards Committee has found a recognized standard in the trade, these standards have been adopted and made part of the Congress specification, with proper reference to those authorities. Standards of the American Society for Testing Materials, and the U. S. Government, Committee on the Elimination of Waste of the Department of Commerce have likewise been freely used.

This mass of valuable information and authority has thus been taken out of the permissive and suggestive class and made mandatory, where the Congress specifications are used.

The Standards Committee, however, realizes that in many cases no mere language can state absolutely the meaning of various grades of materials set up in the trades. In order to clarify possible misunderstanding in such cases, it is proposed that the trade associations shall submit proper samples of materials representing the grades adopted by them or by the Government, these samples to be accepted and so identified, by the New York Building Congress. These samples will then constitute a physical standard which will be placed where they may be examined by those interested and consulted in event of dispute. By and with its coöperation, these samples will be deposited with the Architects Samples Corporation, New York City.

If the Standard Specifications are adopted for use in the prospectus of proposed buildings, the lessee or purchaser will be assured that, if the specifications are adhered to in the actual construction, their interests will be better safeguarded.

The New York Building Congress thus presents to the profession a method for specification writing which it fully believes will simplify the preparation; will reduce the possibility of dispute and will result in closer and more equable estimating by the contractor, with a consequent reduction of cost of building.

Specifications are now available in complete form for all of the trades, except the mechanical, at the office of the New York Building Congress, 101 Park Ave., New York City. From time to time the Standard Specifications will have further divisions added, or the original divisions corrected and brought up to date to keep abreast of the advance in construction knowledge.

THE ARCHITECT'S LIBRARY

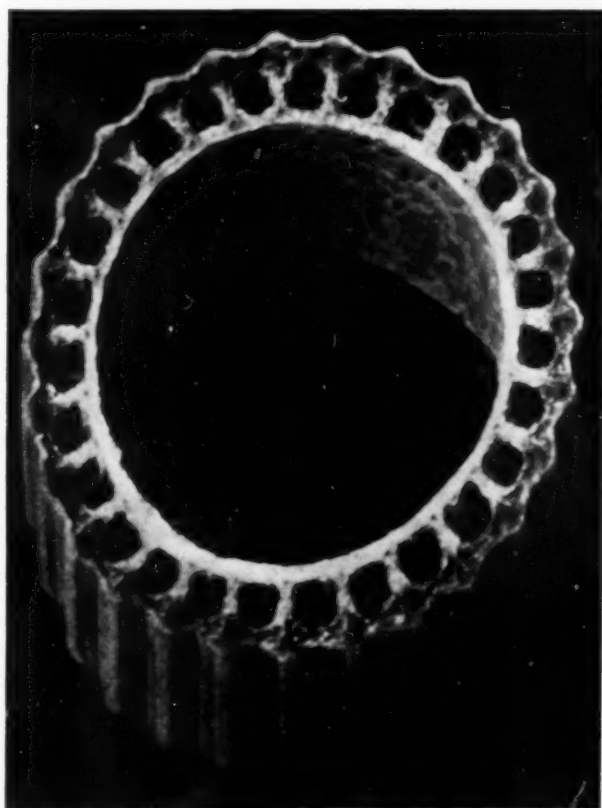
BOOK REVIEWS

URFORMEN DER KUNST

BLOSSFELDT, KARL

Urformen der Kunst, 120 plates, with an introduction by Karl Nierendorf. Berlin: Verlag Ernst Wasmuth; New York: E. Weyhe, 1928. \$10.00.

THE "horsetail fern" is the shrub-like plant by the wayside that children like to pick because the stem consists of innumerable little jointed sections that come apart with a snap. This horsetail fern



EQUISETUM HIEMALE

Section of Stem Enlarged Thirty Times
(Blossfeldt, *Urformen der Kunst*)

Herr Blossfeldt has magnified twenty-five times; and the plate he prints of it in his *Urformen der Kunst* looks like nothing so much as an Indian temple! Such an allusion as that would not be considered a remarkable accomplishment had it not been made without the slightest addition of properties or tricks of light. The magnificent architectural form that the small plant has become simply stands there, by itself, in its own right; and similarly unaffected are the other

revelations, of a dried oak leaf, for example, that the inexpert would take at once for a superb piece of wrought iron, of horse-chestnut twigs that look like Negro carving or Indian totem poles, of a blossom of *geum rivale* with the keen flare of a Georgia O'Keeffe painting, maidenhair ferns curled like the crosier of a French thirteenth-century bishop, and a young shoot of *aconitum* that innocently poses as an infinitely charming dancer.

So this is far more than a source book of design. Printed without a word of comment, and with only the briefest superfluity of introduction, the plates evoke long chains not only of reverie and wonder, but also of calculation.

In a sense this book represents the culmination of a new view by the painter, the sculptor and the architect, of what Nature is. No longer are plants something to be fled to, as in the days of William Morris, for refuge from mechanical dullness to something varied and picturesque and "wild." In those days reproductions from Nature were of whole festoons of roses, and big apple boughs full of blossoms, and bouquets of wild daisies, every petal and leaf carefully copied "from the life" with all the precious variety of its accidents. But already in such volumes as Meurer's in 1895, a different attitude prevails: the designer is given a careful diagram of the spiral or cyclic development of each plant, and the geometry of its stems and leaves, with enthusiastic morphological notes explaining just what functions have in every case determined the form: the encyclopedic variety represents Nature's wealth of invention for solving the one inexorable problem of survival; and the artist is left to infer that his own designs can be as varied and as beautiful if only his *solutions* are as rigorously adequate. Later the connection between Nature and law is pushed still further; Hambidge attempts to extend even to flowers and leaves an extreme theory of aesthetic perfection through immutable mathematical formulae.

But the present book is not so pedantic. Its quality is one of infinite allusion. If its pictures seem to show that beautiful form in Nature is a result of a sort of natural engineering, that is largely because, with the present-day passion for purity and selection, the author has always chosen the single instance in its perfect clean example. But the geometry gets covered with flesh, and then pedantic generalizations get lost and transcended. It is not only the string of high tension insulators at Conowingo, derived by pure calculus, that appears in its forms to have reached something like this natural

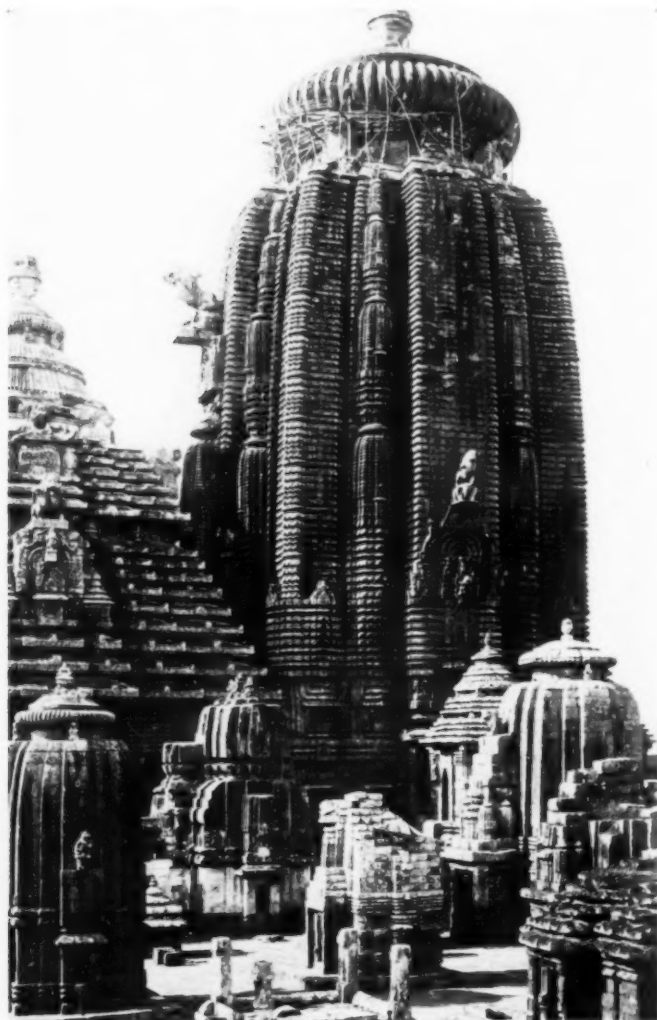


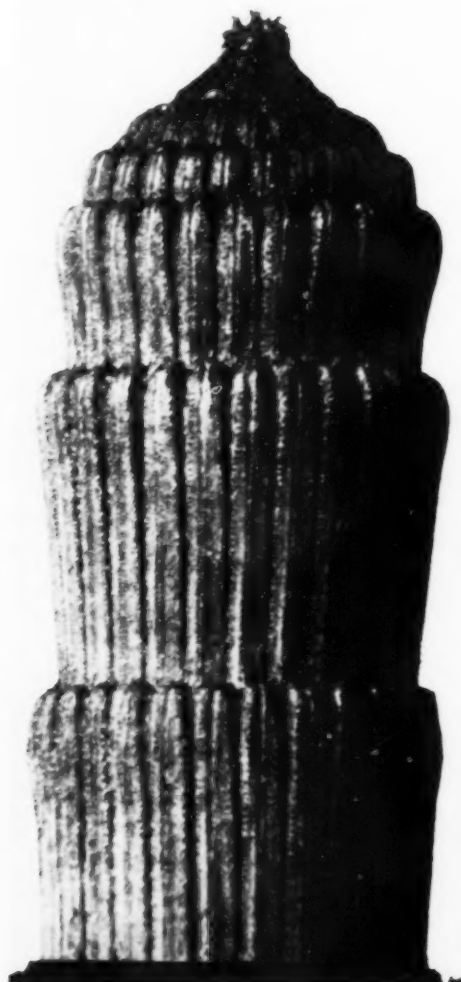
Photo. Johnston and Hoffmann

INDIAN TEMPLE

From "History of Indian and Indonesian Art"

By Doctor A. K. Coomaraswamy

authenticity, but also the Indian temple at Bhuvaneshvara, with a religious luxuriance that we can no longer understand; and the finial at Chartres with its "free" flowering of life; and even baroque and rococo—and the Ziegfeld chorus girl—all find their parallels here. By pure science, by religion, by an exuberance of art or even of folly: on many separate paths men seem to have found their way back to this central Mystery. The one need of applied art would seem to be intensity or passion.



EQUISETUM HIEMALE

Young Shoot Enlarged Twenty-five Times

(Blossfeldt, Urformen der Kunst)

And so as one looks at the pictures in this book, there is just one use of it that one fears as a desecration. It will most certainly be furrowed and mined for the frivolities of "decorative art," and among the thousands who look at it not many will take time to see the little horsetail fern as carrying a secret more ancient than India, and every plant as portraying a sublime tragedy. The book is more than a handbook and as such should be treated with respect.

DOUGLAS HASKELL

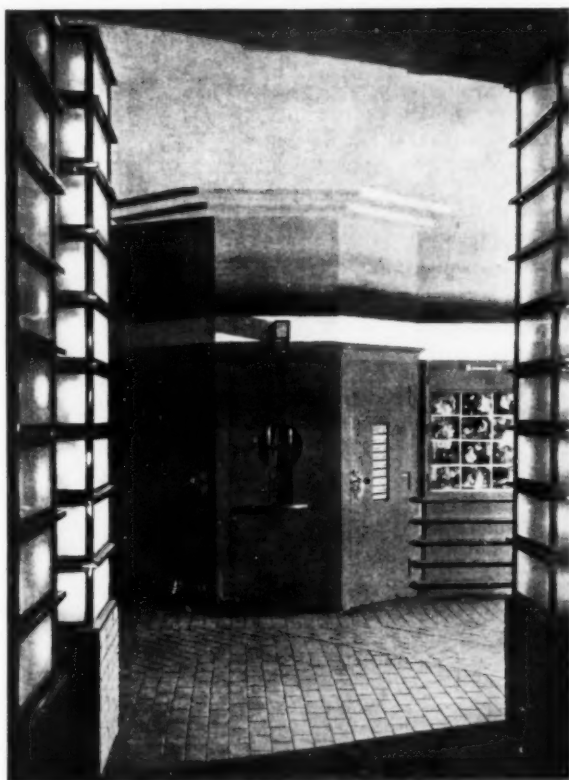
FOREIGN PERIODICALS

Reviewed by Henry-Russell Hitchcock, Jr.

ARCHITECTURAL PERIODICALS PUBLISHED IN GERMANY

MODERNE BAUFORMEN, Monatshefte für Architektur und Raumkunst: publishers, Julius Hoffmann, Stuttgart.

Moderne Bauformen is on the whole an excellent architectural magazine. Compared to the English and Dutch periodicals it certainly provides a more complete view of contemporary production in Germany. Yet *Moderne Bauformen* is lacking as regards text and as regards variety in the illustrations. There are practically no articles at all, merely a few brief paragraphs presenting the different groups of photographs. Editorially this magazine represents neither



CINEMA LOBBY AND TICKET BOOTH, DARMSTADT

FM. JOS. MARGOLD, ARCHITECT

From *Moderne Bauformen*, December, 1928

the left wing nor the right wing but very definitely the dominant center. A considerable amount of the material published is non-German.

To run through *Moderne Bauformen* is to be glutted with good photographs and to be impressed with the general high quality and the extraordinary quantity of German production. But it must be admitted also



REAR VIEW OF GOVERNMENT BUILDING, BRÜNN

BOHUSLAV FUCHS, ARCHITECT

From *Moderne Bauformen*, December, 1928

that one is struck by the absence of originality and the apparent lack of interest in general questions which find expression elsewhere in articles.

WASMUTHS MONATSHEFTE FÜR BAUKUNST, Verlag Ernst Wasmuth, Berlin. December 1928.

Wasmuths has in its editor, Werner Hegemann, a strong personality often reflected in interesting controversial articles. The variety of material illustrated is greater than in *Moderne Bauformen* and there are fewer reproductions and more text.

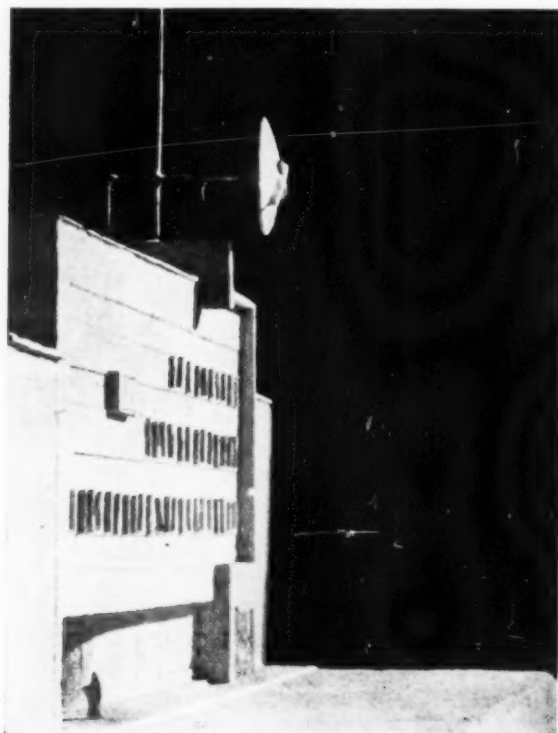
The December number includes the Travemünde airport and a general article on modern architecture in Berlin by a visiting Danish architect. Regrettably his photographs are not good enough for further reproduction. Many of the remodelled shop fronts on the Kurfürstendamm are very interesting, as also Mendelsohn's Universum Cinema. In addition there are presented a group of ferro-concrete bridges, and the houses of fifteen architects in the Gagfah-Siedlung outside Berlin, all simple, comfortable and inexpensive. It is worth noting that they are also for Germany today rather traditionalist in form.

DER BAUMEISTER, Monatshefte für Architektur und Baupraxis. Verlag Callwey, Munich. November.

Baumeister is a somewhat less important magazine than the two just mentioned. The November number

is almost entirely devoted to the work of Welzenbacher of Innsbruck, an Austrian whose work is very similar to that of the German architects between the center and the extreme left.

There is a brief report as well on the Dresden Exposition of the "Technical City."



MODEL OF PUBLISHING PLANT, INNSBRUCK
L. WELZENBACHER, ARCHITECT
From *Baumeister*, November, 1928

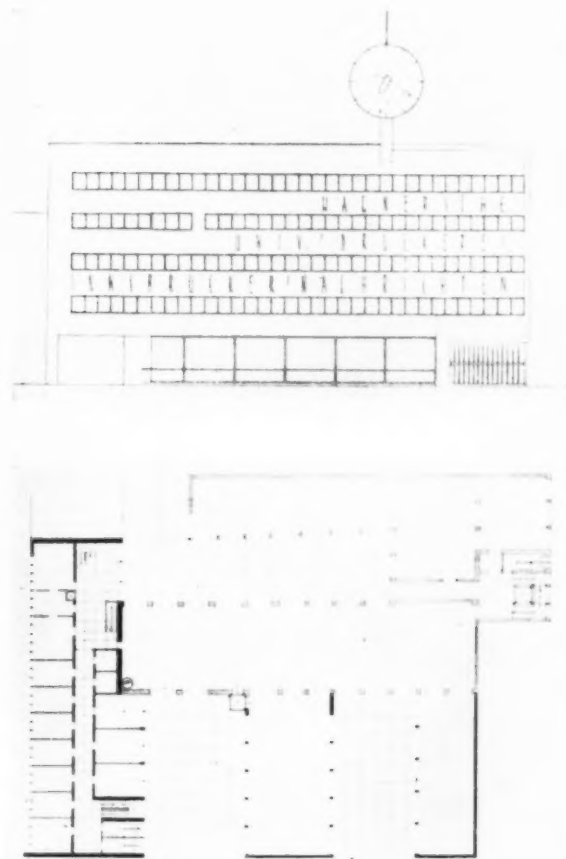
ZEITSCHRIFT FÜR BAUWESEN. Published by the Prussian Ministry of Finance. Verlag Hackebell, Berlin-Leipzig. September-October.

This magazine gives very complete accounts of single building projects of an official nature—in the present case the University Children's Clinic at Marburg a. d. Lahm. This represents the more conservative and semi-traditional manner which is usually favored by the Government. The other articles are of a highly technical nature dealing with engineering matters. Other numbers are more interesting where there is a discussion of a more interesting building project or comparisons with work in other countries.

BAUWETTBEWERBE. Deines, publisher, Karlsruhe.

This magazine is devoted entirely to presenting large architectural competitions. The present number is particularly interesting for it reproduces those premiated in the competition for the Palace of the League of Nations. The design submitted

by Emil Fahrenkamp, one of the most successful German architects of the center, is impressive, but heavy and gloomy as well. This and other similar German projects in this competition illustrate how difficult it is to compromise with the newest manner of architecture here represented by the project of Le Corbusier.



PLAN OF PUBLISHING PLANT, INNSBRUCK
L. WELZENBACHER, ARCHITECT
From *Baumeister*, November, 1928

Bi-monthlies, Weeklies, and Bi-weeklies

The German architectural periodicals which appear oftener than once a month are more technical and less well illustrated than the monthlies. Nevertheless they are frequently of considerable interest. They, perhaps, give a fairer idea of current production since they are less controlled by definite editorial policies.

Among these periodicals, *Die Baugilde* (Grünstrasse 4, Berlin, S. W. 19), appearing twice a month in Berlin, deserves mention. It is the official organ of the association of German architects known as the B. D. A. and of the association of Austrian archi-

fects known as the Z. V. In the number for October 25, 1928, industrial architecture of Schupp & Krenmer is illustrated and although excellent, its relation to the pre-War buildings of the same sort by Behrens is clear. It represents on the whole an original attempt to give aesthetic effect to engineering with the simplest possible means. The rather successful use of brick without any medieval reminiscences is most unusual, for this problem has more generally been handled in ferro-concrete alone.

The number includes, as well, a store building, a church and an apartment house in the semi-medieval style. For its illustrations alone, this magazine might perhaps better serve Americans as a bulletin on contemporary building in Germany than the more sumptuous monthlies.

Stein Holz Eisen is as its title suggests more technical. It is published weekly by Englert & Schlosser, 109 Morfelder Landstrasse, Frankfurt-am-Main. The number for November 1 includes a full presentation of the new Frankfurt Market by Martin Elsässer which is of general interest; otherwise there are few illustrations and the articles are not of particular value to foreigners. It deals chiefly with information on new products, prices, and statistics on building activity in different parts of Germany. The number for November 8 gives the most important designs submitted in the competition for an Old People's Home in Frankfurt: by Anton Brenner, Eugen Baslnk, Bangert & Cetto, and Stam, Moser, and Kramer. The last, the winning project, is more fully illustrated but unfortunately like the others at very small scale.

All the designs which are of somewhat the same character—as is natural at Frankfurt where the public building is all supervised by Ernest May—are of great clarity and simplicity, dignified by very careful study of proportions and by an effective use of the necessary elements to give an intrinsic interest to the elevations.

The *Zentralblatt der Bauverwaltung* edited by the Prussian Finance Ministry and published weekly by Hackebeil, Stallschreiberstrasse 34, Berlin S-4, is

somewhat conservative in its tendencies—for Germany. In the number for October 31st the leading article deals with the latest constructions done for the German State Railroads. Even the wholly engineering works show a certain eclecticism in the massing and that study in the use of picturesque materials which is now largely being given up in Germany for the use of cleaner, simpler, more completely contemporary effects.

The *Deutsche Bauzeitung* appears bi-weekly. The editor is Professor Erich Blunck, 8 Wilhelmstrasse, Berlin S. W. 48. In the number for November 3 the first article deals with the skillful remodelling of an old gate in Lubeck to permit the passage of contemporary traffic.

Bauwelt, published by Ullstein, 22 Kochstrasse, Berlin S. W. 68, is for those who read German one of the most interesting of the weeklies. For November 8 the chief article deals with modern rural building by E. Mand in Schleswig-Holstein, a problem hardly seriously studied elsewhere than in Germany and not thus far even there with particular success. There is also much discussion of standards for the most inexpensive sort of houses and apartments and the presentation of the winning designs in several important competitions in which the ones in what I have called elsewhere the semi-medieval style and the ones in the more rigidly contemporary style seem to have about equal success. Despite the experience of the Germans in the former and the frequent half-heartedness of their conversion to the latter, in the two typical designs here illustrated there can be little question that the more advanced is the more effective, although this may be in part a matter of presentation.

Among this mass of periodical literature it is very difficult to give definite recommendations to Americans. Much depends on the sort of work in which one is interested both as regards the function of the building and the style tendencies. But among the periodicals so far reviewed here none would probably be of more value to the American architect than one of these weeklies.

NOTES AND COMMENTS

SURFACE AND MASS,—AGAIN!

A TRUE announcement of the law of creation, if a man were found worthy to declare it, would carry Art up into the Kingdom of Nature and destroy its separate and contrasted existence.

A wise and noble countryman of mine said that.

I listened before entering an Architect's office and have faithfully worked to be worthy to make that declaration here where Architecture was the game of a rude and youthful people and not the labor of a wise and spirited Nation.

That effort now only well begun, Nature allows me to look in on many "post-mortems," in honor of those foregathered for the purpose. "History" proceeds to repeat itself, as ever,—oblique surmise.

Edificer Cram quotes, "No one who begins a cause is ever allowed to finish it," calling upon that same History as witness. It seemed to comfort him.

He was discussing* with Artificer Tallmadge the fate of the "Modern,"—really modern—"ism." The Artificer lightly underwrote it for the next thirty years as a joke on Oak Park, if New York and Paris "came in." The Edificer said it was dead already, he understood, and fervently hoped it was.

Nature will surprise and disgust both with that consummation we notice in her for both have betrayed her.

At the moment she has her eye on Douglas Haskell and Russell Hitchcock. Here come, eventually, valuable critics?

Yet, by way of the former, last November, I learn that by "weight" I am satisfactorily betrayed into the long grasp of Tradition. Well—insofar as Architecture may not be divested of the weight of organic-nature, I plead guilty,—the trees are guilty likewise.

Useless weight and ornament are sins.

I have sinned. Sometimes for a holiday. Sometimes betrayed by a happy disposition. Week days I seek lightness, toughness, sheerness, preferring them. Week ends I fall from grace.

Has machinery already made exuberance a sin?—poverty a virtue?

Meantime,—my critics,—although a pupil of Louis Sullivan, never have I been his disciple. He has himself gratefully acknowledged this publicly. Had I been his disciple I should have envied him and in the end have betrayed him.

Unjust then as untrue to quote from his Autobiography,—"The search for the rule so broad as to admit of no exception"—as mine when the "exception" still, as always, interests me most, as necessary to prove any rule both useful and useless. That trait

*House Beautiful, January, 1929

enables most critics to fail to penetrate the variegated surface of what I've tried to do.

Do I make excursion into the feeling of an oriental race and,—no lessening grasp upon organic-Architecture,—build their building by means of their own handicraft, dedicate the building to them as oriental symphony?

A wail! I have been false to the mode of the Machine I had proclaimed and championed.

Should I have proclaimed that "Mode,"—now of Paris,—from Tokio house-tops by means of oriental *handicraft* no matter how false the circumstances? Not for a moment the Machine forgotten, but in abeyance while I took off my hat to the Japanese and destructive force, was conquered by integral building:—Showing that Architecture may be "symphonic" in more sound senses than one.

This exception proved many rules, but broke more and still confounds the critics.

I design a negro schoolhouse in the South—make it theirs, in point of life and color,—form too,—departing, nowise, from integral building. The mode of the machine deserted, again, to be humane. This is license?

I build a home for myself in Southern Wisconsin,—a stone, wood and plaster building, make it as much a part of my grandfather's ground as the rocks and trees and hills there are.

This Architect has "lapsed into the picturesque."

On Midwestern prairies I build, in three dimensions, houses that proclaim the prairie's quiet level,—the third dimension evident as unbroken roof-planes likewise lying in similar repose,—as human *shelter*.

The floor-planes too in evidence to give scale to the whole.

Well,—"The Gothic has been put to bed on its side!"

The effort in California and Arizona? Harassed by vexation of industrial confusion, forced lying, hand-sore and heart-sick with makeshift tools, I finally found simple mechanical means to produce a complete building that looks the way the Machine made it,—as much so at least as any woven fabric need look. Tough, light but not "*thin*," imperishable, plastic, no necessary lie about it anywhere and yet, Machine-made, mechanically perfect. Standardization as the soul of the Machine here, for the first time may be seen in the hand of the Architect, put squarely up to Imagination, the limitations of imagination the only limitation of building.

Unhappily, my critics, having seen, must continue to see Egyptian, Mayan, Chinese, Japanese, Persian, Moorish. Not one motif of the sort can they fairly

fix in these buildings for such were never in my mind.

Only because these desert buildings too are naturally elemental in form can they verify resemblance.

Did I prefer them lean,—sun-defiant,—ascetic? They might be so, *honestly*, and please my critics.

Here, in principle,—as servant, not as master is the Machine.

But *why should the product look like machinery?*

Fountains of aesthetic invention and beauty in our Utopia are all but dried up. If, now, we make gospel of any "mode" whatsoever,—they *are* gone! Irrationally bound by cruel provincial judgments of Ism town and Istville, we have known no freedom in Creative Art.

Are we so hide-bound to this bondage that Mode can destroy in Architecture the very principle of Liberty proudly declared in our cherished Jeffersonian charter as essential to Life?

The Modern is. Was always, must always be. At this critical juncture it is at least thirty-two years old.

The New is ever Old,—all shallow pretense aside, and will, repeatedly, seek to become the prison-house of a "mode," beginning with the young.

Therefore, nothing is more vital in America at this psychological moment in her Architecture than active realization of what *living*, and that means *organic* architecture, would bring.

We've had little. Until yesterday we were insultingly careless of that little.

Europeans, only, valued and conserved it or we should now be helplessly prone to the "Modern" imported as French Fashion and be, soon, sterile again for another thirty years.

We show signs of pique at such European conservation inclined to disprove the case rather than render thanks. Here is Douglas Haskell,—Russell Hitchcock no less,—in this ungracious act.

These young critics, I believe, love Architecture as a mysterious essence intrigued by the science and philosophy of the great Art.

They see in "surface and mass" abstractions of great and gifted Europeans "inspired by French painting,"—the Truth. But I know these abstractions repudiate the third dimension, ignoring depth of matter to get surface-effects characteristic of canvas and pigment as painting and not of Architecture,—no, no matter howsoever stark begot with gas pipe, thin slabs and naked steel work. These "materials" may now be used as "decoration" too. Witness the concoctions of "wire, lead-pipe, plumbing-fittings, brass-keys, bits of glass and wood,—of this school? Sophisticated, ingenious, cleverly curious,—they smell of the dissecting room,—affect me as a morgue.

These artificially thin walls like card-board, bent, folded and glued together, are frankly, likewise dedicated *not to the Machine but to machinery!* Therefore they do not live.

The "*lines*" not the *spirit* of mechanical "mobilization," inspire their dry sophistication with a new "Aesthetic" and for the moment a new Simplicity-lie charms us afresh.

But why strive to divest organic-nature of wholesome natural "weight" in vain endeavor to make houses seem to "fly" anywhere,—even into the face of poverty?

Dear boys,—do not spend too much too freely, that might be better kept did you make it yours.

We have here, no stranger,—only a familiar in another guise with more guile than the folly we slept with yesterday,—as much pose but with better breeding,—a gesture of the right sort.

But a gesture seeking to ignore steps already faithfully, painfully and soundly taken to establish here the *reality* thus begestured abroad. In order to prefer French painting as more convenient parent?

Is this because it seeks to be a "movement," always, in Art, a damnable agency, and, that it may move as such must ignore too much?

"Poverty" is no Messiah, needs no prophets. Poverty is disease.

Know that at the very center of every true form of human-use or aesthetic-worth, whatsoever, stands *Nature*. The third dimension *naturally* distinguishes Architecture from Painting. By it we know, the one mind from the other.

Instead of this inner mastery of method and materials of sound-construction, with scientific surrender to utility, in behalf of plastic-simplicity—these "surface-and-mass" effects are no more organic than the "American Classic" of New-York-City or Los-Angeles Tudor-Spanish.

Moreover, stark boxes blister the eyes by refusing the sun-acceptance trees, rocks, and flowers love.

Is this ignorance,—impotence? Or merely empirical endeavor to force issue upon Nature?

Gracious, grateful, sun-acceptance comes by way of texture, pattern-integration, by way of human Imagination. To the eye it is what music is to the ear.

Buildings not knowing this, or, knowing, refusing it, as does a concrete sidewalk, are no more architecture than are buildings using ornament the way the "New" architects use surface and mass,—that is to say superficially, for itself alone.

Such are the edifices of the Artificer or the artifice of the Edifiers,—not radical work of the Architect.

The nature of true Architectural ornament should

not be foolishly mistaken and the abuse of the thing taken for the thing,—preferring "Art and Decoration" per se, to come in commercially triumphant as substitute.

Handicapped by depth of organic-endeavor and happy disposition I know well how difficult simple, integral-things are in Architecture and believe in none otherwise.

I am seeking plastic-simplicity as Architect, not as Painter. No. Nor believing that because of the Machine the Architect has now become mere agent providing for Art and Decoration.

Therein seems the basis for radical difference between myself and the so called card-board house as "New." Were this vital element of the third dimension deducted from my work, what is now seen in the buildings endorsed by our critics as New would be found to be at least as Old as that work itself.

Nor could the varied group of buildings I have created have been produced by a "mannerist." The matter is too deep, the range too wide.

My concern here is not with the Asceticism of superficial surface and mass effects. That I respect as I would a monk's. Nor with its "Aesthetic,"—which is legitimately mine. And we have in this "New" a "picture-house" more to my "taste" than any before. Were the country to choose it before those of our Edificer's, Artificer's and Fashion mongers, it would choose well, but would have to choose again in course of time and have only its labor for its pains over another period of thirty years.

Poverty might get along with it. "Aristocracy" might, too, for a time,—it lives on gestures of the sort from New York and Paris.

But we have a better choice.

In America, realizing Democracy implies *organic* architecture,—buildings implicit with the same *organic-integrity* the aeroplane seeks and has not yet found and our great industrial endeavor seeks, mostly in vain. This quality is nearer in Architecture than in anything else if we will only seek it.

It is a surviving virtue of the skyscraper that it prepared us to see it.

Thirty years, at least, of performance has piled on sound precept until now this country need ask none how to build, from within, its own great buildings in noble, sane, sure way with all the joy of freedom from the prison house of any Mode. No longer creatively sterile but potent beyond anything ever known in this world, America would become, practicing *principles* of Organic-Architecture, Art be carried up into the Kingdom of Nature and its separate and contrasted existence destroyed.

FRANK LLOYD WRIGHT

Chandler, Arizona, April 5, 1929

WANTED—A GEOGRAPHY OF ARCHITECTURE

IF AN observing "man from Mars" were to travel about the American countryside, he might notice that red barns are a common feature of the landscape throughout the Middle Atlantic States and the Middle West, but comparatively rare east of the Hudson and south of the Mason-Dixon line. If he were a very subtle observer, he might notice that the region of the red barn is roughly identical with the region where people pronounce their "r" s.

Naïvely, our observer might be tempted to explain the geographic distribution of the red barn by qualities of the physical environment. He would find indeed that nature has much to do with architecture. New England builds almost exclusively of wood because the crystalline rocks of that region do not cut easily, while soft timber has been abundant. Through the Appalachian valley, however, from Montreal to Birmingham, the presence of limestone and other



A PENNSYLVANIA BARN SEPARATE FROM HOUSE

soft stratified rocks has led to a great deal of stone construction. Regions of good clay and deficient timber build of brick. Heavy snow drifts seem to explain why the Maine farmer likes to attach his barns and stables to his house.

But why do equally snowbound regions farther west make little use of this consolidated house? Why does the typical New England farmhouse lack the ground floor elevation and the front piazza which characterize both the humblest and the most luxuriant homes elsewhere? And how, again, may we explain the enigma of the red barn? Certainly there are many things which cannot be explained by climate or soil.

Environment is merely a negative influence. It says what cannot be, but not what shall be. History, rather than environmental "conditions," furnishes the positive key. The European culture which was

planted here about 1600 was not all of the same species. There were at least five varieties, one being established in Quebec, one in Massachusetts, another on Manhattan, another at Philadelphia, still another in Virginia. While more or less similar in fundamentals, these cultures differed from each other in the details of architecture, costume, games, religious creeds. Each spread in wider and wider circles from its point of origin, until it encountered resistance from competing cultures.

In most things these historic regional differences have been obliterated by modern communication. Today a new architectural invention from New York can be transmitted to Los Angeles almost as quickly as to White Plains or Montclair. But a few traits and customs like those of rural architecture still reflect the days when ideas, like men, traveled, so to speak, on foot.

Motoring, with notebook, from Maine to North Carolina, the writer was able to discern roughly four "cultural areas" with respect to rural architecture. First, New England (of which only the three northern states were observed) is more or less characterized by the consolidated farmhouse with its many ells, its steep sloping, wood shingled roofs, its floor at ground level, lack of veranda, usually white paint; by some separate large barns, usually very near the house and painted the same color, by village greens and ample lawn space, but with nearly all houses located beside highways.

Second, the region of the Hudson Valley and northern New Jersey has higher, squarish, frame houses with ample piazzas and elevated ground floors, much more yellow and brown and less white paint, large red barns considerably separated, often across the highway, from the house. Stone and brick houses are more common but wood still predominates.

Third, southeast Pennsylvania, including the Pennsylvania Dutch region, builds predominantly of red brick, with also much limestone and cement construction. Brick predominates in the cities, as wood does in New England cities. Especially toward Maryland brick sidewalks are common, with city houses built close to the sidewalk without lawn and without ground floor elevation.

The large barn develops a stone foundation reaching ten or fifteen feet above ground, and a red wooden superstructure which "overshoots" the foundation, thus leaving a sheltered zone beneath where fodder may readily be thrown down to cattle. This feature was not observed in any other area except in the Shenandoah valley, which in many respects is a cultural continuation of Pennsylvania.

Fourth, Piedmont plateau, Virginia, is characterized by a type of simple rectangular frame house with long side toward the road and two massive, outside-built, stone chimneys, one on either end. A

common landscape feature is an old ruin, with one or both of these chimneys still standing among the vine covered and almost completely vanished remains of the rest of the house. There are old plantation houses, often of brick and with high columned porticos. There is a simple type of light frame house with red-tinned, gently sloping roof. Finally, the log cabins, white or unpainted, are characteristic.



TYPICAL MAINE FARMHOUSE AND
OUTBUILDING

Many houses are at a distance from and often invisible from the highways. Crossroad hamlets centering about grocery stores take the place of what would be villages in New England. The large barn is rare; instead we have a motley group of small outbuildings of logs or rough hewn timber, usually unpainted. The log-built tobacco barn is most characteristic.

In North Carolina, mill villages, log cabins, and weather-beaten frame shacks share the landscape with the most modern and elaborate types of bungalows near the growing towns.

The writer has merely scratched the surface of a study which would be not only tremendously interesting from the standpoint of architecture, but also very revealing of the principles of diffusion of culture in general.

JOSEPH K. FOLSOM

Sweet Briar College

SOME EARLY CALIFORNIA ARCADES

SOME time ago Mr. Harvey Wiley Corbett sought to interest the hoi polloi in architecture through the medium of the *Saturday Evening Post*. Some architects seemed a shade scandalized that a walker in the consecrated shoes of Ictinus, Brunelleschi, Michaelangelo, Wren, et al., should condescend to speak from any less lofty tribune than the *Journal of the American Institute of Architects*. But Mr. Cor-

bett showed a sound instinct in sensing that the circulation of the *Saturday Evening Post* exceeds that of the *Journal of the A. I. A.* At any rate, one heard more popular discussion of the article than of anything which has appeared in the latter journal.

Once again now Mr. Corbett addresses the lay ear; this time, however, specifically invoking the intelligentsia, as witnessed by his selection of the *Yale Review* (July).

Mr. Corbett's visions of urban possibilities are always intriguing, once one puts out of mind the cost of realization. However, in these, as in other matters, I suppose speculation should not be hampered by quibbling over possible expense. Sooner or later mankind generally gets whatever it needs badly enough, at least in so far as money is the only obstacle. At the present time, however, it is not his grandiose project of sidewalks in second story arcades and aloft at building set-back levels that I wish to discuss, but certain much more humble analogies which the idea brings to mind.

To a person given to worrying over the vagaries of men, a source of frequent puzzlement is the American insensitiveness to the attractions of arcaded promenades. I say "insensitiveness," although it seems really a case of active prejudice. That arcades are protection from summer sun and winter rain; that they are inherently beautiful features—matters like these are so self-evident that one feels foolish having to argue them seriously. Yet the business man persists in his superstitious aversion. This is probably in part a relic of Puritanism. Our interests have shifted from the religious to the commercial field, but the Puritan attitude has remained; a phase of which is the conviction that anything agreeable must be in some way undesirable.

In the early days in California the foothill and mountain towns which sprang up in the wake of mining and incipient commerce took a rather personal line of development. In those days there were no architectural journals to show what was being done in New York. Town planning was naturally rudimentary: layouts varied almost entirely in the length of Main Street, and even these differences did not result from learned considerations. The characteristic feature was a "porch" the full width of the sidewalk in front of each building, with the result that the street was lined by continuous covered ways. These porches consisted generally of flat roofs supported on slim, widely spaced wood posts. They were amply wide so that circulation was unimpeded by the people who leaned against the walls in low-backed chairs with the front legs raised on bed springs. The floors, a foot or so above the road level,

were plank, and if Main Street sloped, they stepped at each building. Along the curb line was apt to be a row of poplar, locust, or other trees.

What style were they? Well, there you have me. The whole design was frankly and unpretentiously wood in character. Its lightness and openness conveyed a touch of elegance. If it lacked "architecture" it possessed character.

Many of these towns, after a period of stagnation or even retrogression, have felt the swelling of civic aspirations with the recent advent of automobile traffic. What happens? The first act of "improvement" is the demolition of the charming covered sidewalks as "old-fashioned." It makes no difference that in these towns now the only occupation beyond receiving the mail is keeping out of the sun in summer and out of the rain in winter, or that the buildings without their porches are hideous. A coat of "stucco" is supposed to solve the latter difficulty. If the community is progressive to the point of having a chamber of commerce, the trees also disappear as unbusinesslike. And thus what was naïvely delightful ends up thoroughly metropolitan and equally stupid.

This situation, only too frequently repeated, directs attention to two curious American characteristics. There is the prejudice previously cited that simple, natural amenities are unbusinesslike. This persists in all lines of activity except those which cater directly to people's physical enjoyment and entertainment, where the comfort is apt to be laid on with such ostentatious luxury that it becomes nothing short of a nuisance. As to sidewalk arcades in particular, almost any foreign city offers some example to demonstrate their desirability and practicability. The outstanding example is of course Bologna. It is difficult to understand how a traveler can taste the simple human graciousness of such a city without being fired with a determination to arcade every street in America.

No less muddled is the common American attitude toward age. Here are towns with quaintly covered sidewalks which are authentic relics. When they clear out these and the trees that shade them and smear their depressing façades with smug gray and pink plaster, business men from the city pat them on the back for their progressiveness. These same business men build houses in which substantial sums of money are applied to simulating various aspects of the depreciation which occurs with age, and fill them with elaborately maltreated furniture.

Just where lies the line between the "old-fashioned" and the "antique"?

IRVING F. MORROW

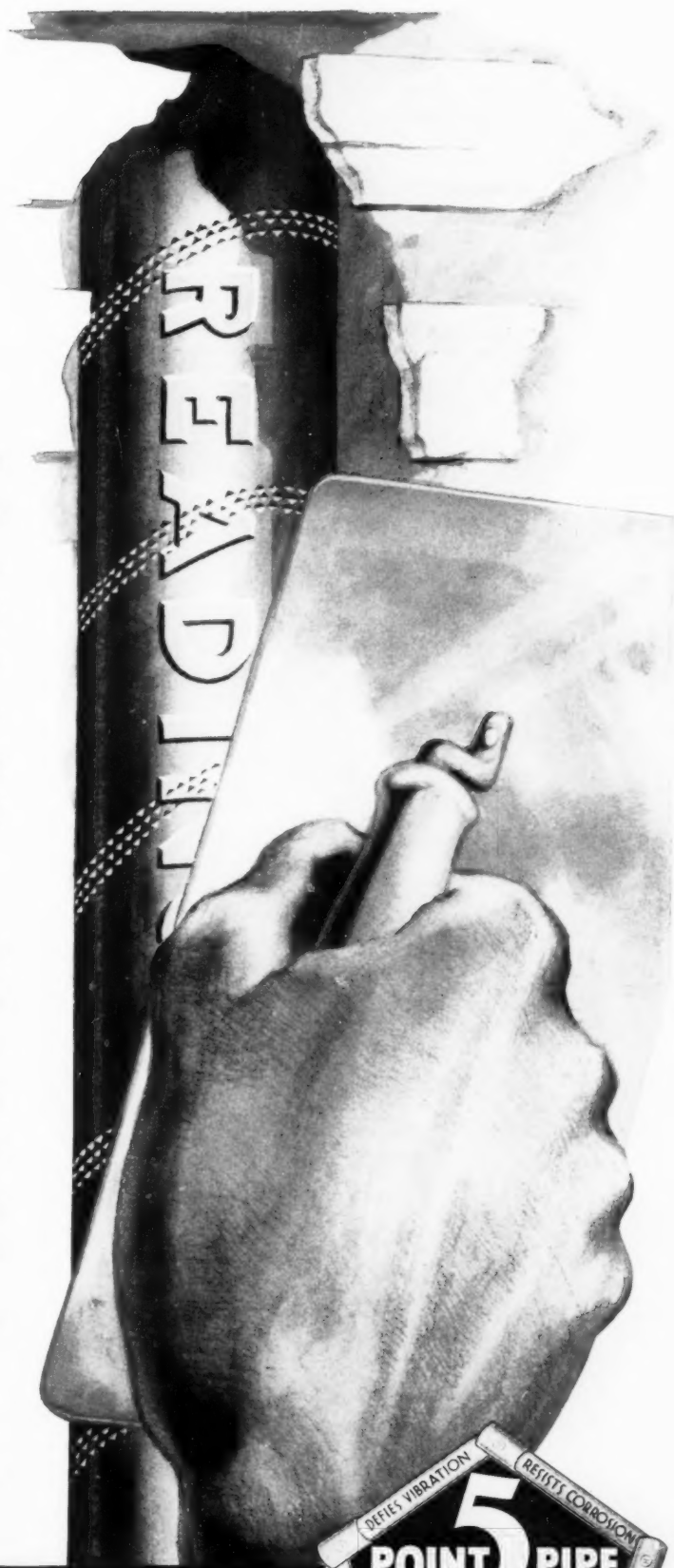
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THERE will be no "hurry up" calls from dissatisfied owners or tenants on the pipe installation shown here. Pipe failures from rust, breakage or leaky joints will be eliminated for years upon years, for this pipe is tough, time-defying Reading 5-Point Pipe, made of Genuine *Puddled Wrought Iron*.

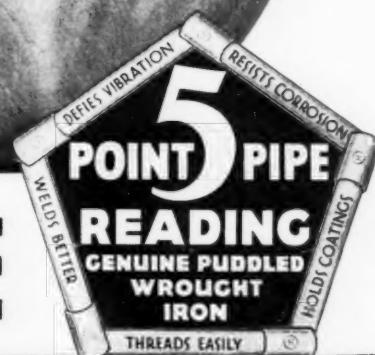
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Boston	Houston	St. Louis	Philadelphia
Buffalo	Los Angeles	Tulsa	New Orleans
Chicago	New York	San Francisco	Kansas City



GENUINE PUDDLED WROUGHT IRON
READING PIPE
DIAMETERS RANGING FROM 1/8 TO 20 INCHES

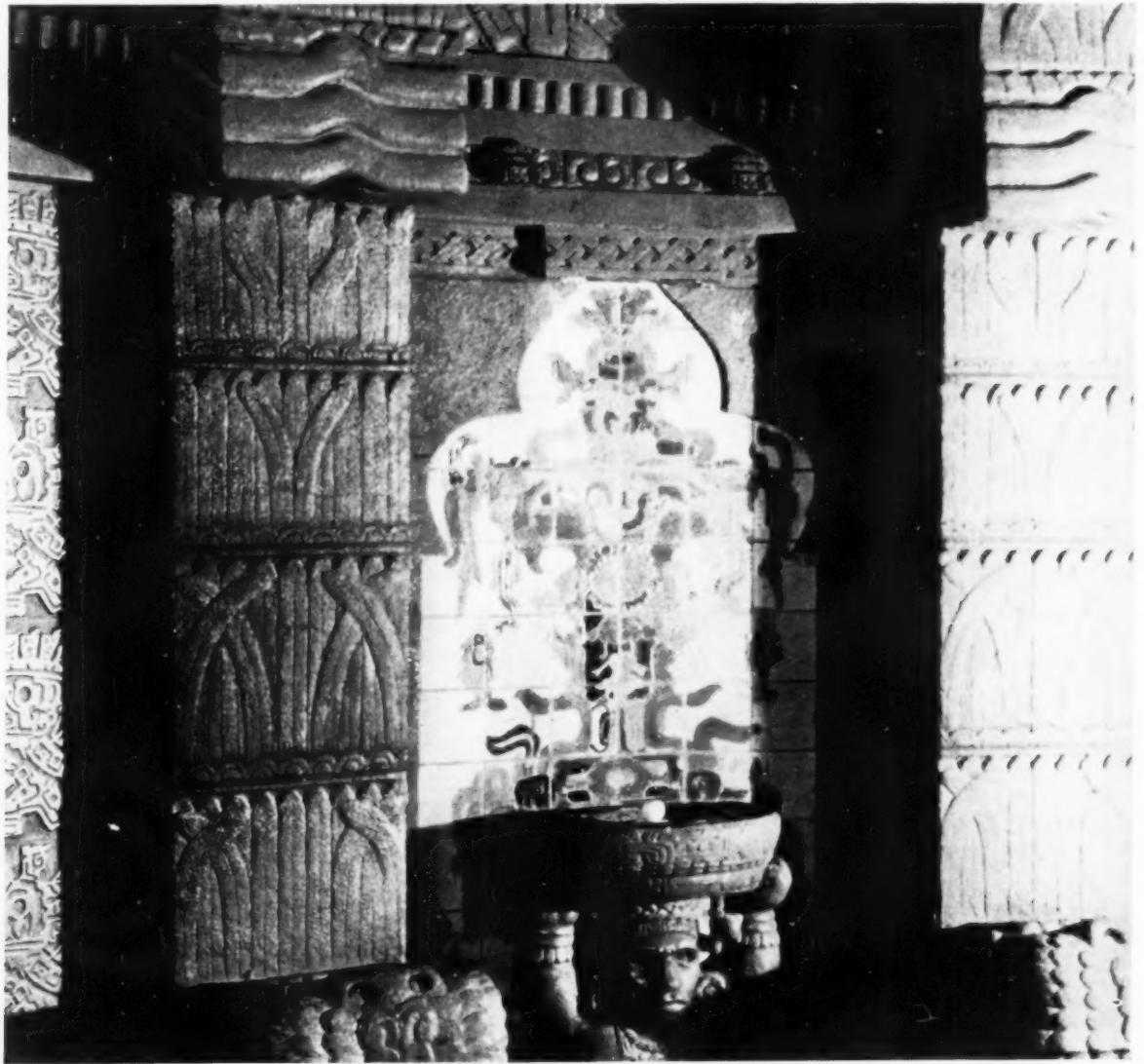


NOTES IN BRIEF

CORROSION OF STRUCTURAL STEEL

Soon after steel had become generally used as the framework of modern structures, the question of the possible failure of large structural steel buildings by corrosion was raised and within the past year this has again been the subject of sensational articles in the daily press. This question was the subject of a popular address last winter by a New York architect, which aroused a considerable amount of disquieting discussion. Structural

sheathing, which was supposed to protect the steel work, had been perforated by corrosion. No particular care was taken to maintain the structural framework, most of which received little or no attention during the life of the building. The small portion of the structural steel in the tower which was subjected to corrosive elements was nearly destroyed. This illustrates forcibly the need of periodic inspection wherever such destructive agencies may have access to the metal. There are a few



TILE FOUNTAIN
MAYAN THEATRE, LOS ANGELES
MORGAN, WALLS & CLEMENTS, ARCHITECTS

steel has been widely used for this purpose for thirty-five years and more with no serious consequences up to the present, but it is well to consider and determine whether adequate precautions are being taken to prevent impairment in the strength, especially in large modern steel buildings. When the Madison Square Garden building was demolished, the structural iron and steel was found to be almost free from corrosion after thirty-five years' service, except in a portion of the tower where copper

similar cases on record where portions of steel structures have suffered serious damage, due to lack of protection and neglect to apply proper precautions. In spite of lack of attention, however, disastrous failures have not occurred in steel frame buildings after thirty-five years, and it appears certain that with proper regard to protection of the steel work in design, inspection and maintenance, the life of steel structures may be prolonged almost indefinitely.

Forest Close at Forest Hills, Long Island, is a community of 38 attractive homes grouped around a central garden or park. The homes range in value from \$16,000 to \$27,500. Cord-Meyer Development Company, Builders; Robert Tappan, Architect.



"We design Buildings with the Andersen Catalog at our elbows"

Robert Tappan, Architect

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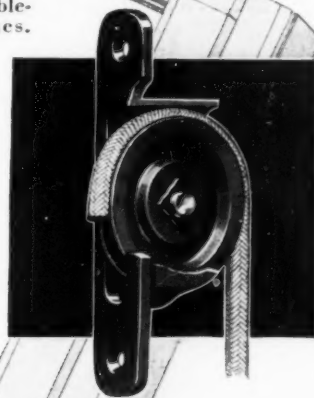
Robert Tappan, who designed Forest Close, writes: "I approve heartily of all sane attempts to standardize essential building units. We are constant users of Andersen Frames and design buildings with the Andersen catalog at our elbows".

You will find the complete Andersen catalog in Sweet's pages B1413-1435.

See
SWEET'S
Catalog
Page
B-1413

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Andersen FRAME CORPORATION., Bayport, Minn.

Corrosion is the most common cause of deterioration of metals. Several general estimates of the wastage of iron by corrosion have been made, some of which are little better than a guess. The actual loss of structural steel from this cause, however, is relatively small, but while conservation of the metal is important, it is, of course, a minor consideration compared with the maintenance of the strength of the structure.

Some metals have a strong tendency to revert to the form in which they occur in their natural ores and, as is well known, this is particularly true of iron when exposed to certain external elements. Iron in oxidizing to Fe_2O_3 evolves 1746 calories per gram of the metal and this indicates approximately the inherent tendency of iron to return to this combination. This fact perhaps has not always been recognized by architects and engineers as it should be, but it is now more generally understood that, where permanence and reliability are desired, preventive measures against corrosion should receive as careful consideration as other details in the design of the structure.

During the past ten or fifteen years much has been done toward a better understanding of corrosion and its prevention in engineering structures. This discussion is confined to the framework of steel structures such as bridges and steel frame buildings, but not to piping, roofing and other accessories except as they have a bearing on the main problem of the safety of the structure as a whole.

F. N. SPELLER

*Metallurgical Engineer, National Tube Co.,
Pittsburgh, Pa.*



A SMALL-HOUSE COMPETITION

A third competition for Small Houses is announced by The House Beautiful Publishing Corporation. There will be two prizes: \$1,000 for the best Small House of five to seven rooms, inclusive, and \$1,000 for the best Small House of eight to twelve rooms, inclusive. The Houses submitted may be of any style and of any material, and must have been built (not remodeled) recently in any part of the United States.

Send for the complete announcement, with rules for presentation of photographs and plans, to The Small-House Competition Committee, 8 Arlington Street, Boston, Massachusetts.



WINNERS IN COLUMBUS MEMORIAL LIGHTHOUSE ARCHITECTURAL COMPETITION

The following are the authors of the ten designs which were placed first in the Architectural Competition for the Columbus Memorial Lighthouse:

Rice Amon, of New York City.

Helme, Corbett & Harrison, of New York City.

Douglas D. Ellington, of Asheville, N. C.

Joaquin Vaquero Palacios, of Madrid, Spain.

Josef Wentzler, of Dortmund, Germany.

Filippo Medori, of Rome, Italy.

Louis Berthin, of Paris, France.

Théo Lescher, of Paris, France.

Donald Nelson of Paris, France.

J. L. Gleave, of Nottingham, England.

The selections were made by an International Jury, selected by the competing architects, which met at

Madrid and consisted of Raymond Hood for North America, Eliel Saarinen for Europe, and Horacio Acosta y Lara for South America. The authors of the ten designs placed first by the International Jury will now recompetite in the second stage of the Competition for the final selection of the design for the Lighthouse, which will be erected on the coast of the Dominican Republic, the scene of the first permanent settlement in the New World.



TRAVEL TOUR FOR LANDSCAPE ARCHITECTS

Professor P. H. Ellwood, Jr., of the Department of Landscape Architecture at Iowa State College, will conduct a summer travel tour in the Orient during 1929. The fundamental purpose of this tour is to study, under very favorable conditions, the gardens and landscape art, as well as the historic architecture, of the Philippines, the Hawaiian Islands, Japan, and China.

The educational and unusually economical features of this tour should appeal to many of our readers. Persons interested in this tour should write to Professor P. H. Ellwood, Jr., Department of Landscape Architecture, Iowa State College, Ames, Iowa.



ROTCH TRAVELING SCHOLARSHIP

The 44th Rotch Traveling Scholarship was awarded to Mr. Charles St. George Pope of Boston. The competition leading up to this award called for a United States Embassy near the Capital of a great South American Republic and was judged by a jury consisting of Mr. Albert Kahn of Detroit, Mr. J. Monroe Hewlett of New York, and Mr. Isidor Richmond, 38th holder of the Rotch Traveling Scholarship, of Boston. The prize carries with it travel and study during two years in Europe and \$1500 in money per year.



FOUNDATION OF AN ASSOCIATION FOR HOUSING REFORM

In the middle of April, 1929, at the instigation of the International Housing Association, an Austrian Association for Housing Reform was constituted, which is to be regarded as a valuable promotion for the International Association. This new-established Association is affiliated with the International Association.

CALENDAR OF EVENTS

GENERAL ANNOUNCEMENTS

- | | |
|--------------------|--|
| July 13 | Summer Outing, Master Builders' Association of Boston. Tuck's Point, Manchester, Mass. |
| Aug. 12-15 | 25th Anniversary Convention, A.I.A. Berlin. |
| Sept. 12-19 | International Housing and Town Planning Congress. Rome. |
| Oct. 29-
Nov. 7 | World Engineering Congress. Tokio, Japan. |
| Nov. 7-22 | Excursion and Inspection Tours in Connection with the World Engineering Congress. |
| Nov. 18 | Lehigh Airports Competition. Closes November 18, 1929. |

Flax-li-num

Through Its Two-Air-Space Method of Application, Gives the Greatest Possible Return in Insulating Value from an Economical Thickness of the Material . . .

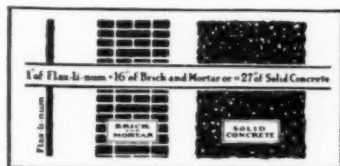


THE principle of securing additional insulating value from FLAX-LI-NUM, by installing it in the middle of the air space between the inner and outer walls, is fundamentally and scientifically correct. Tests by the U. S. Bureau of Standards prove that such an application increases the insulating efficiency of FLAX-LI-NUM 50% . . making possible greater protection from an economical thickness of material.

FLAX-LI-NUM fits snugly between the studs (see diagram), forming a wall-within-a-wall. In this way a double resistance to escaping or entering heat is created . . and the insulating value of the wall is increased by at least one-half. Of this type application the U. S. Bureau of Standards says in their letter Circular No. 227, "The addition of one-half inch layer of material in the middle of the air space is equivalent to about three-quarter inch layer at some other place in the wall."

In no other way can such effective results

be achieved . . in no other way can an economical thickness of material yield the maximum protection and fuel economy. The FLAX-LI-NUM Manual contains full information on this remarkable material and method. If you do not already have a copy in your files, we will be pleased to send one for your ready reference.



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NEWS OF THE FIELD

THE GENERAL ELECTRIC COMPANY, Schenectady, N. Y., announces the appointment of Neil Currie, Jr., as manager of the Philadelphia Works of the company. Robert V. Good, section superintendent in the Schenectady Works, has been named assistant to the manager at Philadelphia. Mr. Currie has been the managing engineer of the motor department of the Pittsfield Works for the past five years, and Mr. Good has been a section superintendent since January 1, 1929.

THE PAIGE AND JONES CHEMICAL COMPANY, engineers and technologists, recently closed with the Wells Fargo and Company Express, S. A., for an agency for Mexico with headquarters at Apartado Postal 361, Mexico City.

THE JOSAM MANUFACTURING COMPANY, Michigan City, Indiana, and Cleveland, Ohio, announces the formation of the Josam-Graver Incinerator Division, to manufacture and market a gas-fired, kitchen floor fed, portable garbage incinerator. The Josam Company states that there is a steadily increasing demand for this product, which is now considered a necessity in every home.

CENTURY BRASS WORKS, INC., Belleville, Illinois, manufacturers of Century Sanitary Drinking Fountains, have a new product on the market—the Century Bubbler Head which automatically controls the height of the water stream and the volume of water used without waste of water. It forms the drinking mound at the correct height for convenient and sanitary drinking. The manufacturers will be glad to send their literature on the subject to any interested architect.

THE ROLLER-SMITH COMPANY, 233 Broadway, New York City, announces an addition to its lines, namely, Type "O" Oil Switches and Circuit Breakers. The Type "O" Oil Switches are made in capacities from 200 to 2,000 amperes, from 2,500 to 15,000 volts and with interrupting capacities from 20,000 to 40,000 KVA. They are made as two pole and three pole devices, automatic and non-automatic, single and double throw, for switchboard, wall and cell mounting; also for hand operation, normal and remote control and electrical operation. All necessary styles of trips and all the usual auxiliaries required in oil switch operation are available.

GORTON HEATING CORPORATION of 96 Liberty Street, New York, announce the opening of their own Branch Sales Office in Pittsburgh, Pa., for the Gorton Single Pipe Vapor Heating System and Gorton Quarter Turn Packing Lock Radiator Valves. This office will be located in the American Bank Building, Corner 6th Ave. and Grant Street, Pittsburgh, under the direction of Mr. William H. Clark, who was with the Anchor Sanitary Company of Pittsburgh for many years. Mr. Clark is a Member of the American Society of Heating and Ventilating Engineers. Mr. Clark is widely known throughout the Pittsburgh District.

ERNEST R. ROGERS has been appointed district engineer of the Kansas City office of the Portland Cement Association, according to an announcement by W. M. Kinney, general manager of the organization. Mr. Rogers succeeds R. M. Simrall.

DAYTON-DOWD COMPANY, QUINCY, ILL., announces the appointment of the Corken Pump & Machinery Company of Oklahoma City and Tulsa, Okla., as its Oklahoma district representatives. The Oklahoma City office will be under the direction of O. K. and C. M. Corken. W. H. Gransden will be in charge of the Tulsa office.

J. C. LINCOLN, formerly president of The Lincoln Electric Company, Cleveland, Ohio, has been made chairman of the board of directors. J. F. Lincoln formerly vice-president of the firm, is now president.

J. S. SPROTT, has been appointed general manager of sales of the Berger Manufacturing Company, Canton, Ohio, according to an announcement made by S. S. French, president of the company. Mr. Sprott has been vice-president in charge of sales of the General Fireproofing Company, Youngstown, Ohio, for the past eight years.

READING IRON COMPANY, Reading, Pa., announces the appointment of Conrad C. High to the sales staff of the Reading district office, and of A. C. Knight to the selling staff of the New York office. Mr. E. W. McHenry has been appointed district sales representative at Houston, Texas. An office has also been established at 402 Mutual Building, Kansas City, Mo., in charge of Mr. H. D. Pollard. Mr. John G. Cottle succeeds Mr. H. L. Shepard, resigned, as railroad sales representative in the Chicago and western territory.

A NEW product, "Floorgard," for steel-armoring the surface of concrete or asphalt floors, has been placed on the market by Blaw-Knox Company, Pittsburgh, Pa. It is a built-up continuous steel mat that is laid down to form the surface of the floor. The pattern is scientifically designed to present such a surface to traffic that stresses will be cared for by the steel, distributing loads through a wide area of floor. Some of the most common uses for Floorgard are in mills, factories, marine and railroad terminals.

BLUDWORTH, INC., manufacturers of special voice amplifier systems for fine homes, churches, schools and public buildings, remote controlled, announce their removal to a larger and better equipped laboratory at 79 Fifth Ave., New York.

THE C. F. PEASE COMPANY, Chicago, Ill., has established a new Pacific Coast sales office at 501 South Spring Street, Los Angeles, Calif. Ralph S. Gibson, Western sales manager, is in charge.

THE TRUSCON STEEL CO. of Youngstown, Ohio, announces new improvements in the Donovan awning type steel window. The new window, they say, is considerably lighter in weight and so constructed that opening and closing the lower section operates the upper section also. No poles, weights, chains or other equipment is used. A booklet describing the new window has been issued by The Truscon Steel Co. and will be sent to those interested on request.



NOT UNTIL YOU'VE BUILT A BUILDING

ARCHITECTURAL students are told, by the way of encouragement, "No one will let you build a building until you've built a building." Anyone using a finish material is often confronted by the same situation. You cannot tell exactly how it will look until it is in place.

Unless . . . you use a product as widely endorsed as "Tapestry" Brick. You don't have to guess what it will look like. All around you are examples of what can be done with the texture and color of "Tapestry" Brick. The finest buildings in the country are your display panels—you know your result before you start.

Decide on your effect, choose your "Tapestry" Brick and turn your time and attention to something else. Colors will be matched *exactly*. Ranges will be what you specify. Delivery will never cause delay.

And you don't have to build a building to prove it. "Tapestry" as a brick and a service is an architectural tradition.

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"Tapestry" Brick. Fiske
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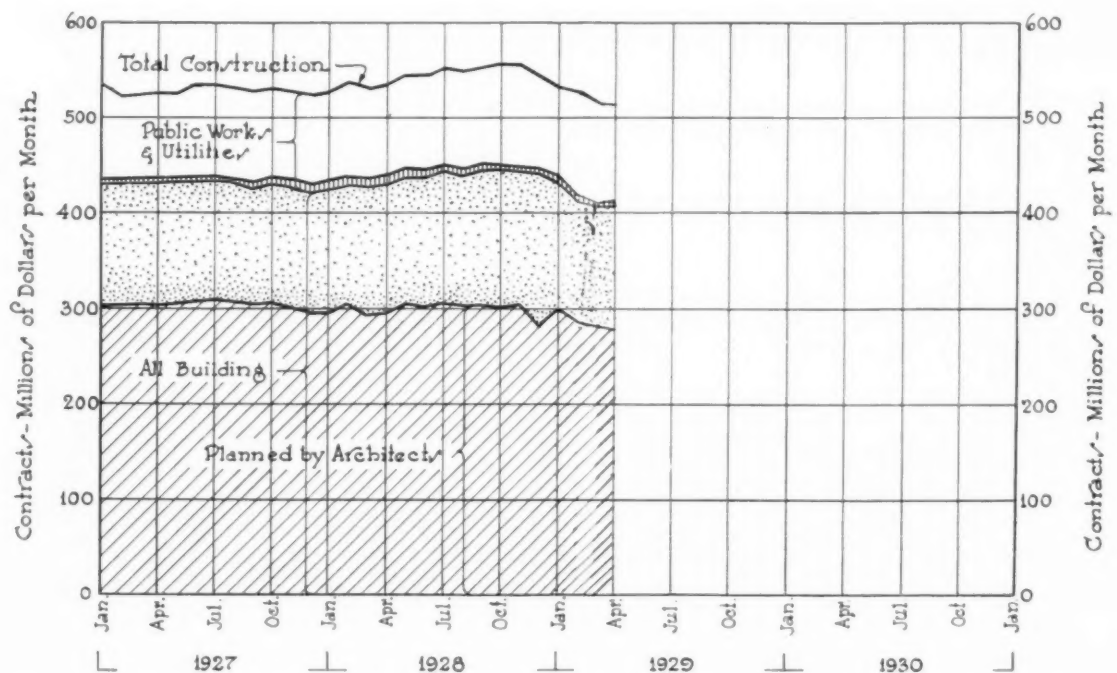
A FISKE BRICK

CONSTRUCTION STATISTICS

From the records of F. W. DODGE CORPORATION, Statistical Division. The figures cover the 37 states east of the Rocky Mountains and represent about 91 per cent. of the country's construction volume.

First Four Months

Classification	TOTAL CONTRACTS		WORK PLANNED BY ARCHITECTS		
	Number of Projects	Valuation	Number of Projects	Valuation	Per cent. of Total
Commercial Buildings.....	7,868	\$322,215,300	3,299	\$242,033,900	75%
Industrial Buildings.....	2,232	243,267,800	778	56,128,500	23%
Educational Buildings.....	933	107,704,900	802	104,057,600	97%
Hospitals & Institutions.....	293	29,564,700	207	24,649,600	83%
Public Buildings.....	353	49,124,500	200	46,488,800	95%
Religious & Memorial.....	609	28,106,400	425	24,461,600	87%
Social & Recreational.....	773	48,909,200	452	38,094,600	78%
Residential Buildings.....	38,337	721,246,900	10,174	438,593,000	61%
Total Building.....	51,398	\$1,550,139,700	16,337	\$974,507,600	63%
Public Works & Utilities.....	4,433	347,750,100	97	19,185,800	6%
Total Construction.....	55,831	\$1,897,889,800	16,434	\$993,693,400	52%
Total Construction first four months, 1928.....	64,228	\$2,127,304,100	19,517	\$1,192,254,100	56%

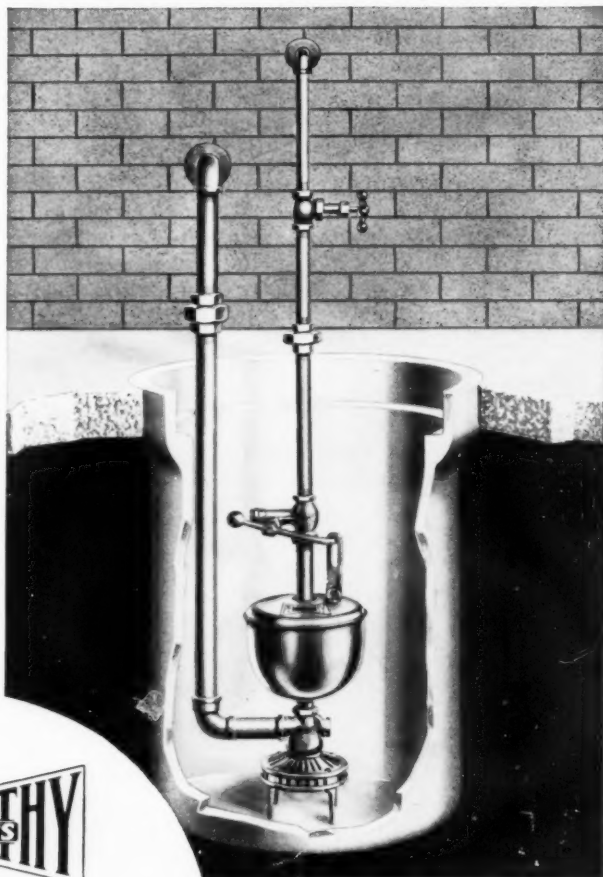


General Trend of Building and Engineering Construction

— a few reasons why MANY ARCHITECTS SPECIFY



ELECTRIC SUMP PUMP



HYDRAULIC CELLAR DRAINER



AUTOMATIC

TO dispose of seepage below sewer level—or where sewerage facilities are not available—many architects specify one of the units illustrated here. Local conditions determine whether the electric or hydraulic unit will be most economical—but the pumps have many desirable characteristics in common.

Both the Penberthy Automatic Electric Sump Pump and the Penberthy Automatic Hydraulic Cellar Drainer are immune to corrosion—they are copper and bronze throughout. Both are thoroughly dependable under the most severe operating conditions, and are economical of electricity and water power.

They have a minimum space requirement and are easy to install. Both can be easily and accurately adjusted to govern the water level at which the pump starts; the strainers are well above the possible sediment deposits at bottom of sump.

Manufacturing a complete line of both electric and hydraulic units in a full range of types and sizes, the Penberthy organization is especially well qualified to serve you by recommending the correct equipment for any specific case.

Stocks throughout the country make both units readily and quickly obtainable.

WRITE FOR COMPLETE SPECIFICATIONS

PENBERTHY INJECTOR COMPANY

ESTABLISHED IN 1886

DETROIT

CANADIAN PLANT WINDSOR, ONT.



Howard C. Reep, Architect
Residence of Dr. D. H. Morgan, Akron, Ohio

An interesting combination of Briar Hill Split-face Ashlar
and Random Length Strips

Stone Perpetuates Artistry ~Enduring Beauty with Economy

Through the coming centuries, this will be identified as the Age of Color. And truly so, for the influence of color has found its way into the home and greets the eye in many charming new uses. Nature's contribution to this new Era is exquisitely expressed in Briar Hill Ashlar. The radiant golden tones of this beautiful sandstone are enduring as Nature itself, reflecting an atmosphere of warmth and friendliness far beyond man-made imitations.

Nation-wide recognition by Architectural craftsmen has created national demand for this unusual Ashlar. Quantity production, reinforced by modern quarrying and milling methods, reduces operating costs so that Briar Hill Stone is economically available everywhere. It can now be used to advantage in moderately priced homes, as well as for prominent institutions and civic structures. This effective Golden Tone Ashlar is supplied in convenient random lengths and heights—in split-face, sand or shot-sawed face.

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RECENT TRADE PUBLICATIONS

ISSUED BY MANUFACTURERS OF CONSTRUCTION
MATERIALS AND EQUIPMENT

[These may be secured by architects on request direct from the firms that issue them, free of charge unless otherwise noted.]

BUILT-IN CABINETS

"Built-in Conveniences." Telephone cabinets. Butress cabinets. Various uses. The Colonial mantel. Bookcase material; suggested arrangements. The Practical Six kitchen cabinets. Advantages. Specifications. El Paso Sash and Door Company, El Paso, Texas. 7 $\frac{3}{4}$ x 10 $\frac{5}{8}$ in. 48 pp. Ill.

FOUNTAINS, DRINKING

"Century Sanitary Drinking Fountains." A.I.A. File No. 29h-1. The New Century Bubbler Head; automatically controls the height of the water stream and the volume of water used without waste of water. Sanitary features. Pedestal, wall and multiple wall fountains. Ice cooled fountains; combination cooler and drinking fountain types. Water tanks. Shower heads. Century Brass Works, Inc., Belleville, Ill. 8 $\frac{3}{4}$ x 11 in. 24 pp.

LIGHTING EQUIPMENT

"Kayline Lighting." A.I.A. File No. 31-F-23. A portfolio dealing with general lighting and specialized lighting. (1) General Lighting. How to plan a lighting system. Various types of fixtures for general use. Actual installations. (2) Public Buildings. Department store lighting. Original designs. Specimen lighting fixture schedule for schools or high schools. 10 pp. of sketches of lighting fixtures for public buildings. (3) Churches. Sketches representing a few of the Kayline designs created for installation in churches. (4) Hotels-Theatres. More sketches of appropriate fixtures. (5) Residential. The new Castilian line of lighting equipment. English thistle lighting fixtures; an all cast bronze line. Solid brass fixtures in the spirit of the Florentine artists. The Colonial line. Kayline equipment for bedrooms, bathrooms, kitchens and porches. The Kayline Company, 600 Huron Road, Cleveland, Ohio. 8 $\frac{1}{2}$ x 11 in. Ill.

LIGHTING, CHURCH

"Eye Comfort." Modern lighting. Curtis engineering method. Indirect luminaires. Eye comfort. Perfect light control. Direct luminaires. Advantages. Actual installations. Curtis Lighting, Inc., 1119 West Jackson Boulevard, Chicago, Ill. 8 x 10 $\frac{1}{8}$ in. 16 pp. Ill.

FLOODLIGHTING PROJECTORS

"Novalux" GEA-161D. Various uses: office buildings, hotels, stores, etc.; monuments and stadiums; fountains, beaches, swimming pools; air advertising and airports. Advantages. Description; casing and door frames, focusing mechanism, mounting, reflectors, lenses, finish. Illuminating data. 8 x 10 $\frac{1}{2}$ in. 19 pp. Ill. Also GEA-67A CR2931 Float Switches. For use with automatic pumping equipments for water level control. Suitable for either tank or sump operation. 8 x 10 $\frac{1}{2}$ in. 6 pp. Ill.

Also GEA-594A G-E Automatic-Control Panels for industrial electric heating. Features. 8 x 10 $\frac{1}{2}$ in. 4 pp. Ill. General Electric Company, Schenectady, N. Y.

(Continued on page 172)

The Invisible Superintendent at the Mortar Box Produces a Mortar

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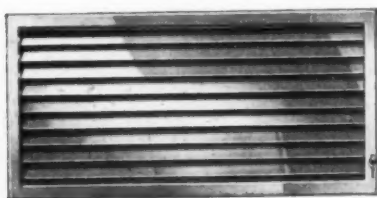
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BOILERS, GAS

"Hand Book on Heating Water" A.I.A. File No. 29
d 22. Diagrammatic description. Appropriate equip-
ment. Hot water consumption and size of storage
system. Tables for private homes, apartments, build-
ings, restaurants, etc. Guaranteed ratings and capac-
ities. Principal dimensions. Detail drawings. Controls.
Specification suggestions. The Bryant Heater & Mfg.
Co., 17852 St. Clair Avenue, Cleveland, Ohio.

DAMPER REGULATORS

"Metaphram" A.I.A. File No. 30c3. Metaphram
damper regulators. Various types. Special uses of
each. Specifications. 8½ x 11 in. 8 pp. Ill.

Also Bulletin F100. National Type F Metaphram
damper regulators for Hot water boilers and domestic
heaters. 8½ x 11 in. 8 pp. National Regulator Co.,
Chicago, Ill.

VAPOR HEATING

"Gorton Single Pipe Vapor Heating System."
Simplicity of installation. Special features. The Gorton
quarter-turn packing lock radiator valve. Sizes and
styles. Vapor air relief valve; school type. Installation
data. Actual installations. Gorton Heating Co., 96
Liberty Street, New York City. 4¾ x 7¾ in. 55 pp. Ill.

HEATING SYSTEM

"Thermoflex Heating Specialties." Everything for
vapor and vacuum heating system. Radiator traps.
Drip traps. Offset traps. Inlet valves. Thermoflex
alternator, etc. Typical details. Installations. W. D.
Cashin Company, 35 Hartford Street, Boston, Mass.
8 x 10½ in. 12 pp. Ill.

INCINERATORS

"Josam Graver Incinerators." A.I.A. File No. 35j41.
Advantages. Floor-fed, gas-fired and portable. Direc-
tions for installation. Dimensions. Josam Manufac-
turing Co., Michigan City, Ind. 8½ x 11 in. 4 pp.

FIREPROOF BUILDING CONSTRUCTION

"Berry Method" A.I.A. File No. 13-b-1. Complete
shop fabricating details. Description and advantages
of Berry Method. Relative cost and speed of construc-
tion. Suggested specifications. Detail drawings and
tables. Leslie G. Berry, Structural Engineer, Charlotte,
N. C. 8½ x 11 in. 32 pp. Ill.

CEMENT, "LUMNITE"

A. I. A. 3-a-3. Cement that makes full-strength con-
crete overnight. Uses. Tests. Economy and speed.
Advantages. The Atlas Lumnite Cement Co. Inc.,
25 Broadway, New York City. 8½ x 11 in. 16 pp. Ill.

PORTLAND CEMENT

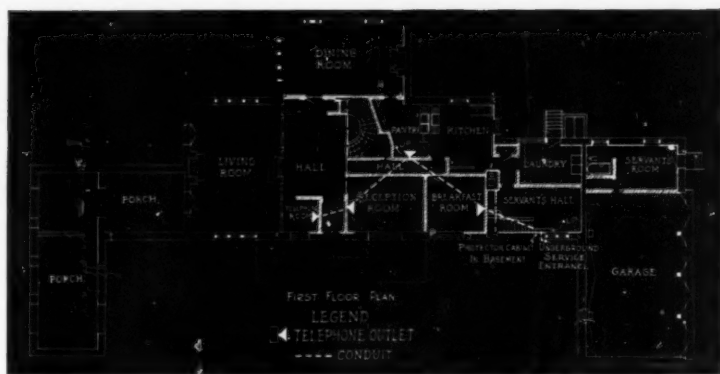
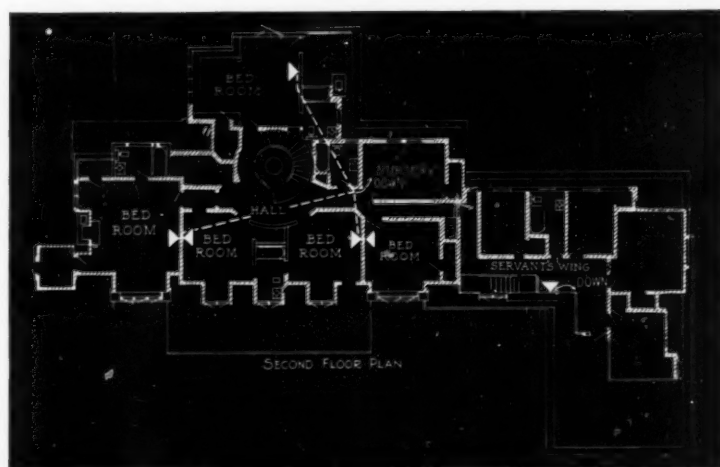
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abrasion. Metalicron, the complete hardener. Strength
tests of Metalicron. Resistance of Metalicron Cement
to acid and alkali action. Representative Metalicron
floors under typical industrial conditions. Actual in-
stallations. The Master Builders Company, Cleveland,
Ohio. 8½ x 11 in. 27 pp. Ill.

(Continued on page 174)

Telephone Convenience is an Important Feature in the Planning of Modern Residences



The new residence of Mr. Thomas B. Wanamaker, in the suburbs of Philadelphia, showing the telephone outlets and conduit layout which provide for modern telephone convenience.—McILVAIN & ROBERTS, Architects.



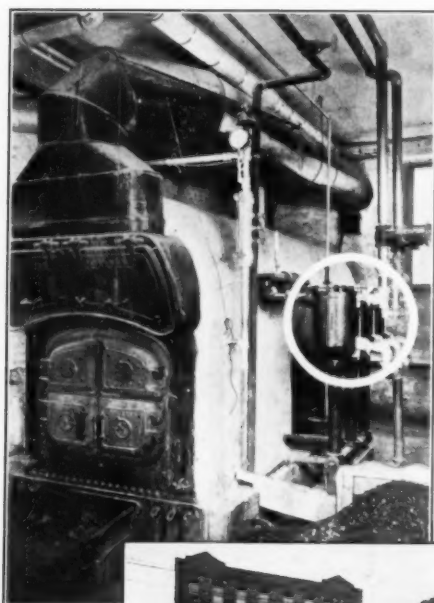
INCREASING attention is being given by architects, in the design of modern residences, to the location of telephones. It is becoming generally recognized that the time to plan for telephone arrangements is when a house is being built or remodeled. In co-operation with telephone company representatives, architects are including provision for telephones in the plans of the house by specifying that conduit be laid within the walls. The necessity of exposed wiring is thus easily avoided.

As each residence presents its own special opportunities for telephone convenience, no

general rules can be applied. It is naturally desirable that the telephones should be sufficient in number and so located as to insure the greatest ease in the use of the service. Quite frequently telephone outlets are provided in rooms where the service is not needed immediately, but may be desired in the future.

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RECENT TRADE PUBLICATIONS—(Continued)

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"Stedman Tile" A.I.A. File No. 23c. From Egyptian floors to the modern floor. Invisible fibre reinforcement, the secret back of lasting wear and permanence. Color, as expressed in floors. Technical information. Actual installations. Stedman Products Company, South Braintree, Mass. 8½ x 11 in. 16 pp. Ill.

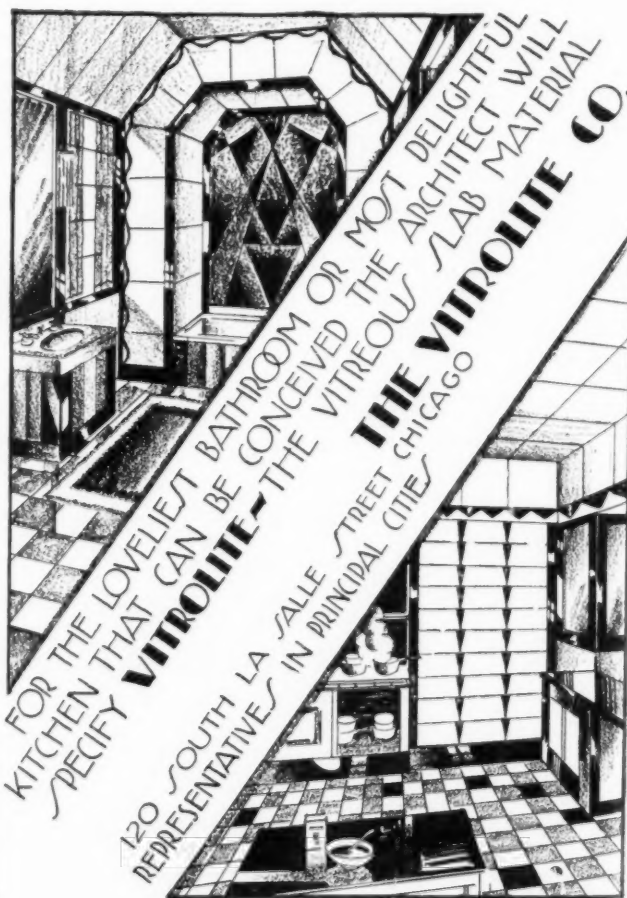
COLORED TILES

"Mosaic Tiles in Color." A.I.A. File No. 23-A. Use of Mosaic Tiles for walls and floors. Advantages. Wide variety; Satin Finish Matts, Vitromat Floor Tiles, Faience Tiles, Ceramic Tiles, Bluestone and Graystone Tiles, etc. Colored plates. The Mosaic Tile Company, Zanesville, Ohio. 8 x 10 in. 20 pp. Ill.

DOOR CHECKS

"The Corbin Line of Door Checks." Mechanical characteristics. Wide range in size and variety. The rack and pinion movement. The spindle. The automatic reversible feature. The holdback attachment. For telephone and coupon booth doors. General classification by sizes. Actual installations. P. & F. Corbin, New Britain, Conn. 7½ x 10½ in. 23 pp. Ill.

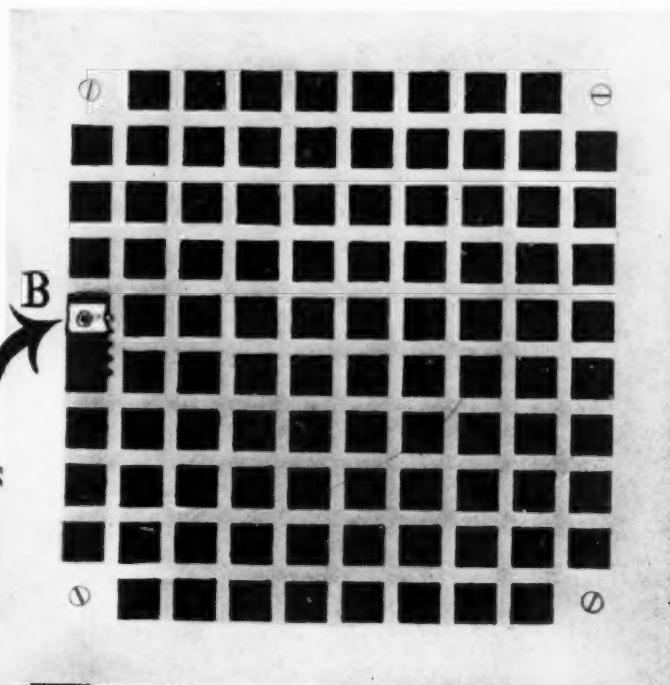
Also "Helpful Information on Corbin Door Checks and their Mechanism." Deals with the Corbin Line of Door Checks from the maintenance point of view. Explains the more or less technical phases of construction and application. 6 x 9 in. 22 pp. Ill.



This new **LOCK TYPE** Register of ours—No. 7800—operates by means of a vertically sliding



control (B) which opens or closes the louvers to any desired extent and, on turning the convenient key, **LOCKS** them in that position positively and altogether prevents tampering with the air or heat supply by unauthorized persons.



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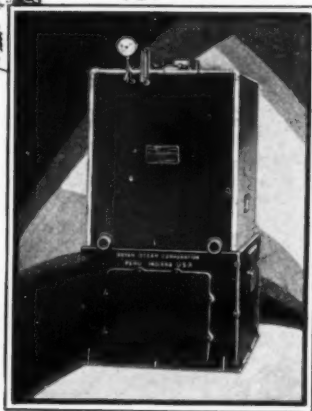
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CLASSIFIED DIRECTORY OF ADVERTISERS

Alphabetical Index to Advertisers, Page 194

After reviewing advertisements in this issue—consult Sweet's Architectural Catalogue 23rd edition for catalogue and specification information on the products of the most of the manufacturers.

- Acid Proof Chemical Stoneware**
Knight, Maurice A.
- Acoustical Installation**—Guastavino, R., Co.
- Acoustics**
Boston Acoustical Eng. Division of Housing Company
- Air Compressors**
Westinghouse Traction Brake Co.
- Arc Welding**—Lincoln Electric Co.
- Arch Roofs**
Lamella Roof Syndicate, Inc.
- Architectural Faience**
Associated Tile Mfrs.
- Architectural Supplies**
American Lead Pencil Company
Higgins, Chas. M., & Co.
- Artstone**—Rackle, George, & Sons Co.
- Asbestos**—Johns-Manville Corporation
- Balances, Sash**—See Sash Balances
- Basement, Windows—Steel**
Detroit Steel Products Co.
Kalman Steel Company
Truscon Steel Company
- Bathroom Accessories**
Eustis, J. P., Mfg. Company
- Beads—Corner Metal**
Concrete Engineering Co.
Genfire Steel Company
Kalman Steel Company
Milwaukee Corrugating Co.
Truscon Steel Company
Wheeling Corrugating Co.
- Beams, Angles, Channels, Etc.**
Carnegie Steel Company
- Blackboards**—Weber Costello Co.
- Blinds—Venetian**
See Venetian Blinds
- Boiler and Pipe Covering**
Johns-Manville Corporation
Ric-wil Company
- Boilers**—American Gas Products Co.
American Radiator Co.
Badger, E. B., & Sons Co.
Bryan Steam Corp.
Smith, H. B., Company, The, Inc.
- Bolts—Door**—Corbin, P. & F.
- Brass and Bronze Workers**
See "Ornamental Metal Workers"
- Brick**—Common Brick Mfrs. Assoc. of America
Finzer Bros. Clay Co.
Fiske & Company, Inc.
Hood, B. Mifflin, Brick Co.
- Bridges—Steel**—American Bridge Co.
- Builders**—Stone & Webster, Inc.
- Building Paper**—Bird & Son, Inc.
- Buildings—Steel**
Carnegie Steel Company
- Butts**—Corbin, P. & F.
Stanley Works
- Cabinet Work**—Hyde-Murphy Co.
- Cabinets—Medicine**
Eustis Mfg. Co., J. P.
Hess Warming & Ventilating Co.
- Cabinets—Radiators**
Tuttle & Bailey Mfg. Co.
- Casement Operators**—Rixson, Oscar C., Company

The Architectural Record, July, 1929